Cornell University

ANNOUNCEMENTS

New York State *Veterinary College*

1968-69

A Statutory College of the State University,
At Cornell University, Ithaca, New York

Cornell Academic Calendar

1968-69 *

Orientation, new students:	
Convocation, 2:00 P.M.	Th. Sept. 12
Registration, new students	F, Sept. 13
Registration, old students	S, Sept. 14
Fall term instruction begins, 7:30 A.M.	M, Sept. 16
Midterm grade reports due	S, Oct. 26
Thanksgiving recess:	
Instruction suspended, 1:10 P.M.	W, Nov. 27
Instruction resumed, 7:30 A.M.	M, Dec. 2
Fall term instruction ends, 1:10 P.M.	S, Dec. 21
Christmas recess	
Independent study period begins	M, Jan. 6
Final examinations begin	M, Jan. 13
Final examinations end	T, Jan. 21
Intersession begins	W, Jan. 22
Registration, old students	F, Jan. 31
Registration, new students	S, Feb. 1
Spring term instruction begins, 7:30 A.M.	M, Feb. 3
Deadline: changed or make-up grades	M, Feb. 10
Midterm grade reports due	S, Mar. 15
Spring recess:	
Instruction suspended, 1:10 P.M.	S, Mar. 29
Instruction resumed, 7:30 A.M.	M, Apr. 7
Spring term instruction ends, 1:10 P.M.	S, May 17
Independent study period begins	M, May 19
Final examinations begin	M, May 26
Final examinations end	T, June 3
Commencement Day	M, June 9
Deadline: changed or make-up grades	M, June 16

* The dates shown in the Academic Calendar are subject to change at any time by official action of Cornell University.

CORNELL UNIVERSITY ANNOUNCEMENTS

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Cornell University

New York State Veterinary College

1968-69

A Statutory College of the State University,
At Cornell University, Ithaca, New York

Contents

The courses and curricula described in this *Announcement,* and the teaching personnel listed therein, are subject to change at any time by official action of Cornell University.

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A. Gordon Danks, Director of Student Administration.
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William H. Johndrew, Assistant to the Dean.
Alan J. Grout, Director of Laboratory Animal Standards.

FACULTY

James A. Perkins, A.B., Ph.D., President of the University.

Emeritus Professors

Baker, Donald W., B.S., D.V.M., Ph.D., Professor of Veterinary Parasitology, Emeritus.
Dukes, H. Hugh, B.S., D.V.M., M.S., D.H.C., D.Sc., Professor of Veterinary Physiology, Emeritus.
Fincher, Myron G., D.V.M., M.S., Professor of Veterinary Medicine, Emeritus.
Gilman, Herbert L., D.V.M., M.S., Ph.D., Professor of Veterinary Bacteriology, Emeritus.
Olafson, Peter, D.V.M., M.S., Professor of Veterinary Pathology, Emeritus.
Stephenson, Hadley C., B.S., D.V.M., Professor of Veterinary Therapeutics and Small Animal Diseases, Emeritus.

Professors

Baker, James A., B.S., M.S., Ph.D., D.V.M., Professor of Veterinary Virology, and director of the Veterinary Virus Research Institute.

Bentinck-Smith, John, A.B., D.V.M., Professor of Veterinary Pathology.

Bergman, Emmett N., B.S., D.V.M., M.S., Ph.D., Professor of Veterinary Physiology.

Boyer, Clyde I., Jr., V.M.D., M.S., Professor of Laboratory Animal Medicine.

Bruner, Dorsey W., B.S., Ph.D., D.V.M., Professor of Veterinary Microbiology, and Chairman of the Department of Veterinary Microbiology.

Calnek, Bruce W., D.V.M., M.S., Professor of Avian Diseases.

Comar, Cyril L., B.S., Ph.D., Professor of Physical Biology, and Head of the Department of Physical Biology.

Danks, A. Gordon, B.S., D.V.M., Professor of Veterinary Surgery, and Director of Student Administration. (On sabbatic until 12/31/68).

Delahanty, Donald D., D.V.M., M.S., Professor of Veterinary Surgery, and Director of the Large Animal Hospital.

Evans, Howard E., B.S., Ph.D., Professor of Veterinary Anatomy, and Secretary of the College.

Fabricant, Julius, B.S., V.M.D., M.S., Ph.D., Professor of Avian Diseases.

Fox, Francis H., D.V.M., Professor of Veterinary Medicine and Obstetrics, and Director of the Ambulatory Clinic.

Gasteiger, E. L., Jr., A.B., M.S., Ph.D., Professor of Physical Biology. (On leave, 1968–69).

Gillespie, James H., V.M.D., Professor of Veterinary Bacteriology. (On sabbatic leave, 1968–69).

Habel, Robert E., D.V.M., M.Sc., M.V.D., Professor of Veterinary Anatomy, and Head of the Department of Anatomy.

Hitchner, Stephen B., B.S., V.M.D., Professor of Avian Diseases and Head of the Department of Avian Diseases.

Jasper, Donald E., D.V.M., M.S., Ph.D., Visiting Professor of Avian Diseases.

Kirk, Robert W., B.S., D.V.M., Professor of Small Animal Medicine.

Krook, Lennart P., B.V.M., D.V.M., Ph.D., Professor of Veterinary Pathology, and Graduate Field Representative.

Lengemann, Fred W., B.S., M.N.S., Ph.D., Professor of Radiation Biology.

Leonard, Ellis P., B.S., D.V.M., Professor of Small Animal Surgery, Head of the Department of Small Animal Medicine and Surgery, and Director of the Small Animal Clinic.

Levine, P. Philip, B.S., D.V.M., M.S., Ph.D., Professor of Avian Diseases (on sabbatic leave 11/68–4/69).

McEntee, Kenneth, D.V.M., Professor of Veterinary Medicine and Pathology, and Chairman of the Department of Large Animal Medicine, Obstetrics, and Surgery.

Noronha, Fernando M., D.V.M., Professor of Veterinary Virology.

Peckham, Malcolm C., B.S., D.V.M., Professor of Avian Diseases.

Poppensiek, George C., V.M.D., M.S., Professor of Veterinary Microbiology, and Dean of the College.

Rickard, Charles G., D.V.M., M.S., Ph.D., Professor of Pathology, and Chairman of the Department of Veterinary Pathology.

Roberts, Stephen J., D.V.M., M.S., Professor of Veterinary Medicine and Obstetrics.

Sellers, Alvin F., V.M.D., M.S., Ph.D., Professor of Veterinary Physiology, and Head of the Department of Physiology, Biochemistry, and Pharmacology. (On sabbatic leave, 1968–69.)

Sheffy, Ben E., B.S., M.S., Ph.D., Professor of Nutrition, and Assistant Director of Cornell Research Laboratory for Diseases of Dogs.

Stevens, Charles E., B.S., D.V.M., M.S., Ph.D., Professor of Veterinary Physiology.

Wasserman, Robert H., B.S., M.S., Ph.D., Professor of Radiation Biology.

Whitlock, John H., D.V.M., M.S., Professor of Veterinary Parasitology.

Winter, Alexander J., B.S., D.V.M., M.S., Ph.D., Professor of Veterinary Microbiology.

Associate Professors

Anders, Marion W., D.V.M., Ph.D., Associate Professor of Veterinary Pharmacology.

Aronson, Arthur L., B.S., D.V.M., M.S., Ph.D., Associate Professor of Veterinary Pharmacology.

Carmichael, Leland E., A.B., D.V.M., Ph.D., Associate Professor of Virology.

Coggins, Leroy, B.S., D.V.M., Ph.D., Associate Professor of Veterinary Virology.

Craig, Peter H., B.S., V.M.D., M.S., Associate Professor of Pathology in the Department of Physical Biology.

de Lahunta, Alexander, D.V.M., Ph.D., Associate Professor of Veterinary Anatomy.

Dobson, Alan, B.A., Ph.D., Associate Professor of Veterinary Physiology.

Geary, Jack C., D.V.M., Associate Professor of Radiology and Director of Radiology in the Department of Large Animal Medicine, Obstetrics, and Surgery.

Georgi, Jay R., D.V.M., Ph.D., Associate Professor of Veterinary Parasitology.

Haynes, N. Bruce, B.S., D.V.M., Associate Professor of Veterinary Science, and Extension Veterinarian.

Henrikson, Per Ake, D.D.S., Ph.D., Visiting Associate Professor in the Department of Veterinary Pathology.

Hillman, Robert B., A.B., D.V.M., M.S., Associate Professor of Veterinary Medicine and Obstetrics. (On sabbatic leave, 1968–69.)

Kenney, Robert M., D.V.M., Ph.D., Associate Professor of Reproductive Pathology in the Department of Large Animal Medicine, Obstetrics, and Surgery.

King, John M., D.V.M., Ph.D., Associate Professor of Veterinary Pathology.

Lee, Kyu M., M.D., Ph.D., Associate Professor of Virology.
Nangeroni, Louis L., B.S., D.V.M., M.S., Associate Professor of Veterinary Physiology.
Norcross, Neil, A.B., M.S., Ph.D., Associate Professor of Immunochemistry.
Post, John E., B.S., D.V.M., Ph.D., Associate Professor of Veterinary Pathology.
Ross, George E., Jr., B.S., D.V.M., M.S., Associate Professor of Small Animal Surgery.
Sack, Wolfgang O., D.V.M., M.R.C.V.S., Ph.D., Associate Professor of Veterinary Anatomy.
Schryver, Herbert F., B.A., D.V.M., Ph.D., Associate Professor of Pathology, and Director of Equine Research Program.
Tapper, Daniel N., B.S., V.M.D., Ph.D., Associate Professor of Radiation Biology.
Tasker, John B., D.V.M., Ph.D., Associate Professor of Clinical Pathology.
Thompson, John C., Jr., B.S., M.S., Ph.D., Associate Professor of Environmental Radiation Biology.
Wootton, John F., B.S., M.S., Ph.D., Associate Professor of Physiological Chemistry.

Assistant Professors

Appel, Max J., D.M.V., Ph.D., Assistant Professor of Veterinary Virology.
Arion, William J., B.S., M.S., Ph.D., Assistant Professor of Physiological Chemistry.
Braun, R. Kenneth, B.S., D.V.M., Assistant Professor in the Department of Large Animal Medicine, Obstetrics, and Surgery.
Campbell, S. Gordon, B.V.M.S., M.V.Sc., Ph.D., Assistant Professor of Veterinary Microbiology.
Casarett, Alison P., B.S., M.S., Ph.D., Assistant Professor of Radiation Biology.
Cummings, John F., B.S., D.V.M., M.S., Ph.D., Assistant Professor of Veterinary Anatomy.
Hintz, Harold F., B.S., M.S., Ph.D., Assistant Professor of Animal Nutrition.
Holzinger, Edwin A., D.V.M., M.S., Assistant Professor in Department of Veterinary Pathology.
Kahrs, Robert F., D.V.M., M.S., Ph.D., Assistant Professor in Veterinary Epidemiology, Department of Large Animal Medicine, Obstetrics, and Surgery.
Kallfelz, Francis A., D.V.M., Ph.D., Assistant Professor of Physical Biology.
Lee, Helen H., B.A., Ph.D., Assistant Professor of Veterinary Microbiology.
Lowe, John E., D.V.M., M.S., Assistant Professor of Veterinary Surgery.

Lust, George, B.S., Ph.D., Assistant Professor of Biochemistry in Department of Veterinary Microbiology.
Scott, Frederic W., B.S., D.V.M., Ph.D., Assistant Professor of Veterinary Microbiology.

Senior Research Associates

Dunn, Henry O., B.S., M.S., Ph.D., Senior Research Associate in the Department of Large Animal Medicine, Obstetrics, and Surgery.
Hiltz, Frederick L., B.S.E.E., M.S.E.E., Ph.D., Senior Research Associate in the Department of Physical Biology.
Lein, Donald H., D.V.M., Senior Research Associate in the Department of Large Animal Medicine, Obstetrics, and Surgery.
Nusbaum, Sidney R., D.V.M., Senior Research Associate in the Department of Veterinary Pathology.
Takahashi, Reiji, B.V.Sc., D.V.M., Ph.D., Senior Research Associate in the Department of Veterinary Microbiology.

PROFESSIONAL SERVICE—LABORATORIES AND LIBRARY

Angstrom, Clement I., D.V.M., Director of Laboratory, Avian Diseases Program (Kingston).
Boldt, Vincent L., D.V.M., Field Veterinarian, Mastitis Program (East Aurora).
Brown, Harold L., D.V.M., Field Veterinarian, Mastitis Program (Earlville).
Conover, Carol L., B.A., M.L.S., Associate Librarian.
Field, Lincoln E., D.V.M., Field Veterinarian (Ithaca).
Guthrie, Richard S., D.V.M., Supervising Veterinarian, Mastitis Program (Ithaca).
Hagan, Jean R., D.V.M., Director of Laboratory, Avian Disease Program (Oneonta).
Johnson, Seth D., D.V.M., Field Veterinarian, Mastitis Program (Ithaca).
Leibovitz, Louis, B.A., B.S., V.M.D., Field Veterinarian (Eastport).
Linquist, Wesley, D.V.M., Field Veterinarian, Mastitis Program (Amsterdam).
Miller, Pearl S., B.S., M.Ed., M.L.S., Assistant Librarian.
Narotsky, Saul, D.V.M., Director of Laboratory, Avian Disease Program (East Aurora).
Price, Jessie I., B.S., M.S., Ph.D., Research Specialist in Avian Diseases (Eastport).
Reinap, Mia, B.S., B.S. (Library Science), Librarian of the Flower Veterinary Library.
Temple, Harry C., D.V.M., Field Veterinarian, Mastitis Program (Kingston).
Toth, Thomas, D.V.M., Duck Disease Specialist (Eastport).

Urban, William D., V.M.D., Director of Duck Research Laboratory (Eastport).
Wager, Leslie A., D.V.M., Field Veterinarian, Mastitis Program (Canton).
Zeissig, Alexander, B.S., D.V.M., M.S., Ph.D., Director of the Diagnostic Laboratory.

RESEARCH AND TEACHING PERSONNEL

Burda, Karina, B.S., M.S., Research Associate in the Department of Large Animal Medicine, Obstetrics, and Surgery.
Coote, Beverly A., B.V.Sc., Research Associate in Department of Veterinary Pathology.
Corradino, Robert A., B.S., M.S., Ph.D., Research Associate in the Department of Physical Biology.
Cowen, Barrett S., B.S., M.S., Research Specialist in the Department of Veterinary Avian Diseases.
Ebel, Joseph G., B.S., Ph.D., Research Associate in the Department of Physical Biology.
Fabricant, Catherine G., B.S., M.A., Research Associate in Department of Veterinary Microbiology.
Fuerst, William F., Jr., B.S., M.S., Teaching Associate in the Department of Veterinary Physiology.
Johnson, George A., D.V.M., Research Associate in the Department of Pathology.
Kingsbury, John M., Ph.D., Lecturer in Phytotoxicology, and Associate Professor of Botany.
Korman, Ruth Z., B.S.A., M.S., Ph.D., Research Associate in the Department of Physical Biology. (On leave, 1968–69.)
Long, Peter L., Visiting Research Associate in the Department of Avian Diseases.
Martin, Donald B., B.S., D.V.M., Visiting Fellow in the Department of Small Animal Medicine and Surgery.
McLeod, Francis D., Jr., B.S., Research Specialist, Department of Veterinary Physiology.
Moraff, Howard, A.B., B.S., M.S., Research Specialist in the Department of Physical Biology.
Rich, Lonnie J., B.S., D.V.M., Research Associate in the Department of Small Animal Medicine and Surgery.
Waterman, Fausto E., D.V.M., Research Associate in the Department of Veterinary Pathology.
Wentworth, Richard A., B.S., M.S., Ph.D., Research Specialist in the Department of Physical Biology.

INTERNES

Conner, Edward R., B.S., D.V.M., Interne in Department of Large Animal Medicine, Obstetrics, and Surgery.

Higginbotham, Ronald L., D.V.M., Interne in Department of Large Animal Medicine, Obstetrics, and Surgery.
Leahy, James M., A.B., D.V.M., Interne in Department of Large Animal Medicine, Obstetrics, and Surgery.
Mehling, John A., D.V.M., Interne in the Department of Large Animal Medicine, Obstetrics, and Surgery.
Mehling, Maridelle H., D.V.M., Interne in Department of Small Animal Medicine and Surgery.
Neal, Tom M., D.V.M., Resident Interne in Small Animal Medicine and Surgery.
Nolan, Paul M., D.V.M., Interne in the Department of Large Animal Medicine, Obstetrics, and Surgery.
Soirez, Resley F., B.S., D.V.M., Interne in Small Animal Medicine and Surgery.
Swann, William P., B.S., D.V.M., Interne in Department of Small Animal Medicine and Surgery.
Twisselmann, Kenneth L., V.S., D.V.M., Interne in the Department of Large Animal Medicine, Obstetrics, and Surgery.

SPECIALISTS AND TEACHING TECHNICIANS

Brock, John F., Visual Aids Technologist.
Caleb, Paul J., X-Ray Technician.
Kellogg, Roland, Livestock Superintendent.
Mowers, Harold, Farrier.
Newson, Marion, R.N., Medical Illustrator.
Reidemanis, Alfreds, Anatomical Specialist.
Ryan, Gerald D., Research Technician.

VISITING STAFF, 1967–68

Ball, Leslie, Colorado State University, Fort Collins, Colorado.
Decandia, Mario, Milan University, Milan, Italy.
Fowler, Murray E., University of California, Davis, California.
Hendrikson, Per A., Gothenburg, Sweden.
Jovanovic, Milovan, Belgrade, Yugoslavia.
Long, Peter L., Houghton, England.
Martin, Donald B., Oakland, California.
Meyer, Hermann, Colorado State University, Fort Collins, Colorado.
Whiteman, Charles E., Colorado State University, Fort Collins, Colorado.

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A. de Lahunta (1966–69)
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G. E. Ross, Jr. (1967–70)

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P. P. Levine (1967–70)
A. de Lahunta (1968–71)
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D. W. Bruner

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A. J. Winter
A. G. Danks

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C. G. Rickard
A. F. Sellers
C. E. Stevens — pro tem for A. F. Sellers 1968–69

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E. P. Leonard
C. G. Rickard

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P. P. Levine
R. W. Kirk

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P. P. Levine, Chairman
C. L. Comar
R. E. Habel

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J. Bentinck-Smith
J. C. Geary

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D. W. Bruner
H. E. Evans
J. R. Georgi

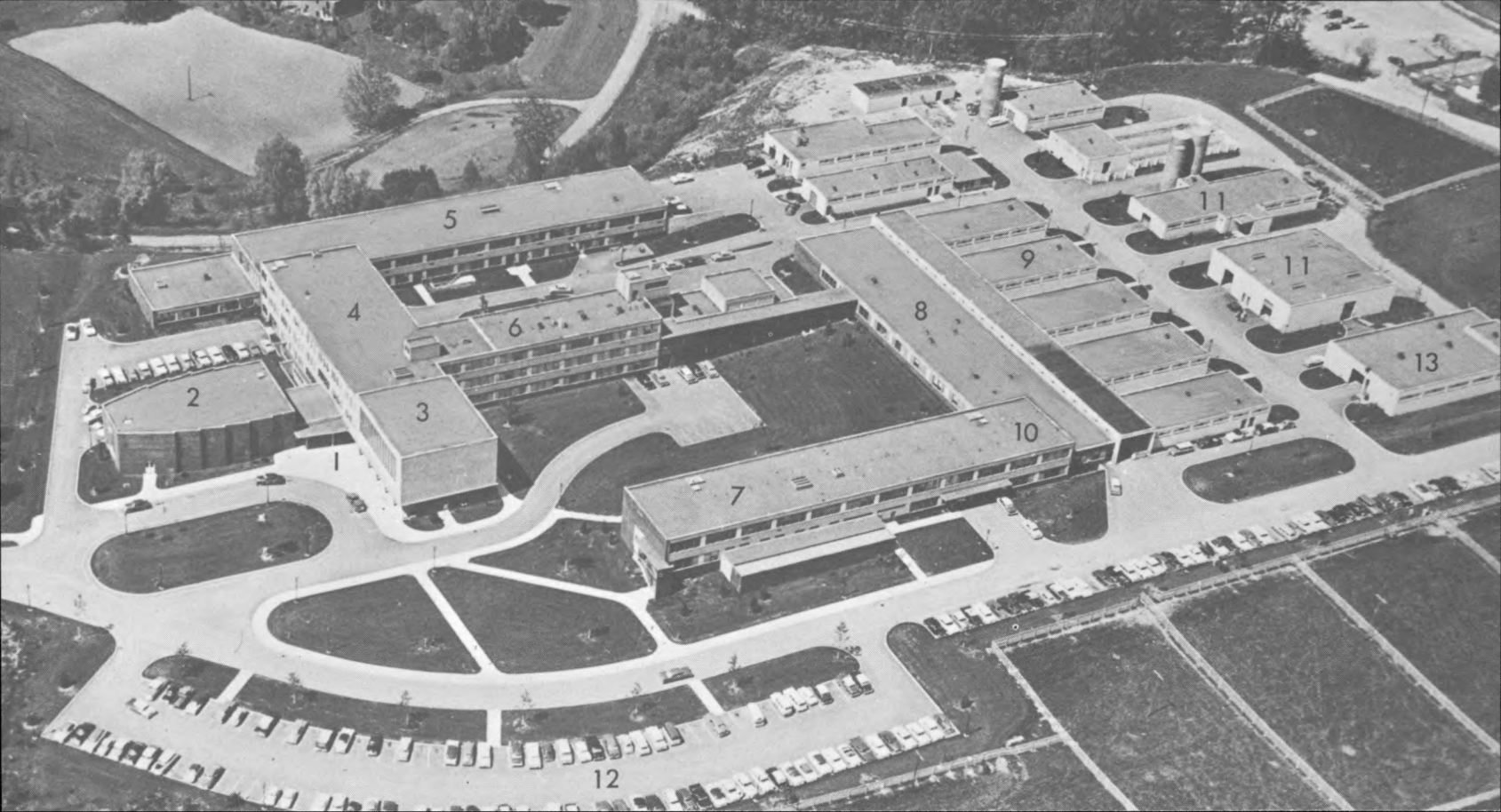
Class of 1970

J. F. Wootton
F. H. Fox
W. O. Sack

Class of 1969

A. de Lahunta
J. E. Lowe
G. E. Ross, Jr.

* The Dean is ex officio a member of all committees.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Cornell University

THE VETERINARY COLLEGE

BUILDINGS

The New York State Veterinary College, established by an act of the State Legislature in 1894, is on the campus of Cornell University at Ithaca, a city of approximately 30,000 permanent residents, situated in the famous Finger Lakes Region of New York at the head of Cayuga Lake. The city is in the south-central part of the state, about 260 miles from New York. It has air connections with Boston, New York, Buffalo, Washington, D.C., Detroit, and other cities by way of Mohawk Airlines.

In 1957 the Veterinary College moved into new buildings at the eastern edge of the Cornell campus. Of a plot of about twenty acres, the buildings occupy nearly twelve acres, leaving the remainder for paddocks and exercise lots for animals. They constitute one of the finest physical plants possessed by any of the world's veterinary colleges. The equipment, of the most modern type, is ample for teaching and research in the basic and clinical sciences.

The Veterinary College Library

The library, endowed by a gift from Roswell P. Flower, Governor of New York when the college was founded, is named the Flower Veterinary Library in his honor. It is maintained partly by endowment funds and partly by appropriations from the State. It is on the second floor of Schurman Hall. The large reading room, seating seventy, features display shelves of current journals and areas for indexes, abstracts, and other reference books. The adjoining stacks of journals and monographs, on three levels, are open to all users. Individual study carrels are also available.

The library contains over 48,000 volumes and regularly receives 1,178 periodicals and series titles. Represented here is a world-wide selection of

: Veterinary College. (1) Main Entrance, Schurman Hall. (2) James Law Audi-um. (3) Library. (4) Microbiology. Physical Biology. (5) Anatomy and Physiology. Pathology. Avian Diseases. (7) Small Animal Clinic and Hospital. (8) Large mal Clinic. (9) Large Animal Hospital Barns. (10) Medicine and Obstetrics. bulatory Clinic and Mastitis Control. (11) Ancillary Barns. (12) Visitor Parking. Garage and Farrier Shop.

veterinary titles plus titles in the biomedical sciences designed to support undergraduate, graduate, and research programs. Cornell University libraries on the campus make available to the students over 3,200,000 volumes, and 36,500 journals and serials. These collections, interlibrary loans, and photoduplication of materials supplement the research potential of the veterinary library. The library is rich in historical and basic research resources, as well as recent monographic works and especially selected government publications.

The library issues a monthly newsletter listing recent acquisitions. Information on library regulations and suggestions for the use of the library are provided to new students. Additional instruction in bibliographic research is available for advanced problems. A special index to reference sources in the library is also available.

RESEARCH FACILITIES

In addition to the facilities of the campus, extramural facilities for research on infectious, parasitic, and metabolic diseases of farm animals and small animals have been constructed, for the most part on Snyder Hill, about three miles from the campus, on a tract of 133 acres.

Besides the many buildings for housing animals, most of which have small pastures, exercise lots, or paddocks of their own, a number of laboratory buildings have been built for professional staff members stationed there for research. A laboratory for the study of leukemia, financed by the National Cancer Institute, was completed in 1967. At the same time the construction of a large animal isolation facility was finished. Both buildings are at the Snyder Hill Experiment Station.

Poultry Disease Research and Diagnosis

POULTRY DISEASE RESEARCH is done both on the campus in conjunction with the diagnostic and teaching laboratory and at the research laboratory on Snyder Hill about three miles from the campus. A 41-unit disease isolation building forms part of the facilities on the campus.

The Snyder Hill facilities consist of a two-story laboratory well equipped for research in the bacterial, virus, and parasitic diseases of chickens and turkeys. A respiratory disease-free flock of chickens is maintained for the production of chicks and embryos. There are 28 separate pens for holding experimental birds on a tract of land of several acres.

An excellently equipped duck disease research laboratory is maintained at Eastport, Long Island, with the cooperation of the Long Island Duck Research Cooperative. Facilities for housing investigators and graduate students are available.

DIAGNOSIS. The Veterinary College maintains and staffs regional veterinary laboratories for poultry disease diagnosis at Ithaca, East

Aurora, Oneonta, Kingston, and Eastport. The last is combined with the Duck Research Laboratory.

These diagnostic facilities serve the poultry industry needs in the surrounding area, and their staffs provide extension services and assist in the collection of materials and cases required for research in Ithaca.

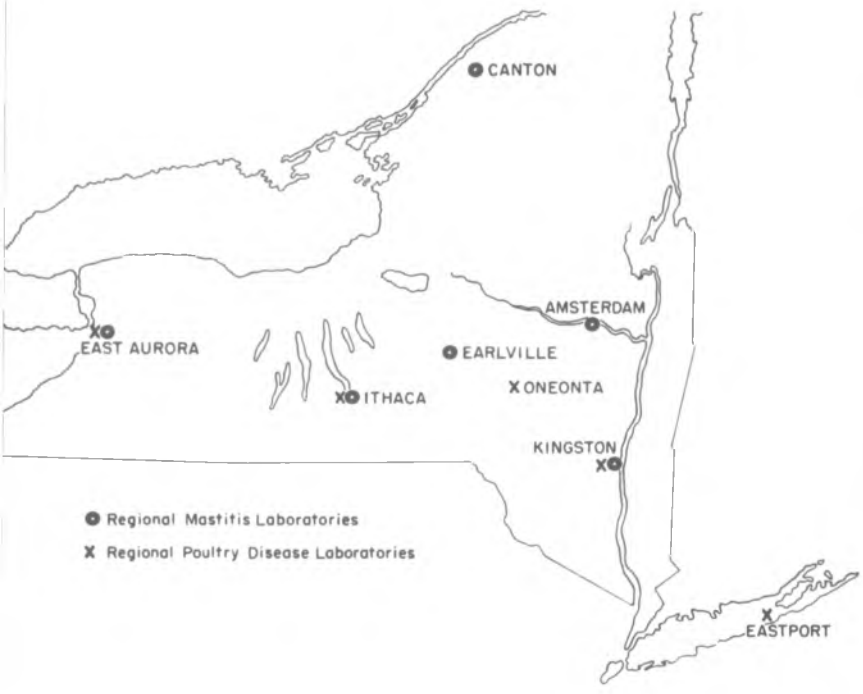
New York State Mastitis Control Program

Six laboratories, strategically located in dairy areas of New York State, conduct work on mastitis control programs under the Department of Large Animal Medicine, Obstetrics, and Surgery.

ITHACA. This is the central laboratory where the research and student training programs are conducted. The laboratory serves eleven counties with a cow population of about 166,000.

AMSTERDAM. This laboratory conducts, primarily, a control program for dairy owners. Eleven counties in the Hudson and Mohawk Valleys have approximately 156,000 cows.

CANTON. Eight counties of northern New York are serviced by this laboratory with 229,000 cows. The laboratory is located at the New York State Agricultural and Technical Institute where extension and some student teaching are practiced.



EAST AURORA. Eleven western New York counties with nearly 238,000 cows can obtain mastitis surveys. The laboratory devotes full time to control programs.

EARLVILLE. Seven counties with nearly 260,000 cows have available the control program in central New York.

KINGSTON. Ten counties and 110,000 cows are located in the mid-Hudson and Eastern New York area which can be serviced by this control laboratory.

The Veterinary Virus Research Institute

In September, 1950, the Board of Trustees of Cornell University established a new unit in the New York State Veterinary College: the Veterinary Virus Research Institute. Formation of the Cornell Research Laboratory for Diseases of Dogs was approved as a section of the Institute.

The primary objective of the Institute is to prevent loss from infectious diseases in animals. Toward this end, basic research is conducted upon organisms which cause disease in order to increase knowledge of their nature, means of spread, and methods whereby their spread can be controlled. Another objective of the Institute is the training of workers in the field of virology. Determined by the amount of laboratory space available, a limited number of graduate students and postgraduate visiting investigators are accepted.

The Virus Institute is on Snyder Hill, near the University but far enough in the country so that farmland is available for rearing disease-free animals and a part of the uncontaminated feed supplies necessary. Believed to be the only one of its kind in the world is a herd of disease-free cattle, given by the Rockefeller Institute to the Veterinary Virus Research Institute to supply cattle ideally suitable for research work. Also unique is a kennel building given by the Gaines Dog Research Center for rearing dogs free from disease.

After consideration of the many technical difficulties involved in work with viruses and other living organisms that can be airborne or transferred accidentally in other ways, three buildings were designed and constructed. These contain six modern and fully equipped laboratories for research and teaching, in addition to a library, offices, a tissue culture laboratory, and animal isolation units that can be cleaned and decontaminated effectively. An additional laboratory building completed in October, 1967, doubled space by adding laboratories for biochemistry, pathology, electronmicroscopy, and additional virology laboratories. A feature of the building is controlled air, which makes possible more refined procedures.

Another isolation building, acquired by matching funds from the United States Public Health Service and private donors, houses other disease-free animals including pigs, chickens, guinea pigs, rabbits, and mice.

Research on Sheep and Cattle Disease

SHEEP DISEASE. A tract of seventy-five acres of land on Turkey Hill, particularly suitable for research on internal parasites of sheep, has been equipped for maintaining a flock of sheep. On this tract a ten-acre pasture is irrigated artificially to maintain a natural infestation of internal parasites under controlled conditions. A new sheep barn including facilities for raising experimental animals under helminthologically sterile conditions has recently been constructed.

DISEASES OF THE REPRODUCTIVE TRACT IN CATTLE. Facilities are available for housing approximately one hundred heifers and thirty bulls, which are used for study of reproductive diseases of dairy cattle.

Radiation Biology

A field laboratory including a radiation exposure facility, on-line computing facilities, and a whole body counter for fundamental studies in radiation biology has been constructed on a forty-acre tract of land provided by the University. This facility is an integral part of the Department of Physical Biology.

Muenscher Poisonous Plants Garden

The most complete garden of poisonous plants in America is north of the James Law Auditorium. In cooperation with Cornell Plantations and the Genetics, Development, and Physiology Section of the Division of Biological Sciences this collection of living plants which are poisonous to livestock is maintained by the Veterinary College. Each specimen is labeled with its scientific name, its common name, and the name of the plant family to which it belongs.

ADMISSION AND ENTRANCE REQUIREMENTS

The minimum educational requirements for admission to the New York State Veterinary College are the satisfactory completion of two years'[1] study in an approved (registered) college or university. The two years of college study must include:

English—six semester hours;
Physics—six semester hours, including laboratory;
Biology or zoology—six semester hours, including laboratory;
Chemistry—twelve semester hours, including organic chemistry with laboratory.

The courses in English, physics, and biology or zoology should cover at least one academic year each. The work in chemistry should cover at least one and a half academic years and must include a course in organic chemistry with laboratory work.

An applicant for admission is expected to have facility in the use of the English language in speech and composition. Therefore, a course in oral and written composition, or in speech, is strongly recommended.

The choice of other courses is left to the student, but the following are recommended: quantitative chemical analysis, a modern foreign language, history, economics, government, mathematics, biometry, philosophy, psychology, comparative anatomy, general physiology. It is desirable to have a course in botany. It is suggested that not more than 30 semester hours of the minimum requirements be devoted to chemistry, biology or zoology, and physics.

Prospective applicants are urged to visit the College and discuss with the Director of Student Administration the individual's aptitude and preparation for a place in the profession.

TWO YEARS OF STUDY has been interpreted as meaning the passing of one half as many semester units as are required by the particular institution for its baccalaureate degrees. Most institutions which are run on a semester basis require 120 units, but some require 124, and some even 128. At least sixty semester units must be presented, therefore, and in some instances sixty-two or more.

A REGISTERED COLLEGE is one which is registered with, and its curriculum approved by, the New York State Education Department. All colleges within New York State which are authorized to grant baccalaureate degrees are registered and approved. This is not true, however, of all such institutions outside New York State. In general, practically all of the larger colleges and universities are registered. If in doubt as to whether any particular school is registered, one should address correspondence to the State Education Department, Albany, N.Y. 12224, and not to this College.

[1] In recent years, few students have been selected with only two years of preparation.

THE FARM PRACTICE REQUIREMENT. For registration in the third year, a total of twenty farm practice points for farm work experience is required, of which at least ten must be for experience with livestock. A minimum of ten points, including not less than five for livestock, must be presented to qualify for admission. By "livestock," farm animals are meant. Dogs and cats are not included, and not more than three points can be claimed for experience with poultry.

Except for students who have previously enrolled in the College of Agriculture and whose farm practice scores are available, the Committee on Admissions of the Veterinary College will estimate the experience of all candidates. All who are admitted without farm practice ratings by the Office of Student Practice, New York State College of Agriculture, will have their farm experience evaluated by that office at the time of matriculation. Factors considered in establishing the credits are (1) desirability of the farm from the standpoint of obtaining good experience; (2) the student's report on his farm experience; (3) reports from the farmer on the student's work; and (4) the results of a practical farm experience test. All who are found to be deficient will be required to make up their deficiencies during the first two summer vacations while they are in college.

Applicants who have been reared on farms where livestock are kept should easily meet all requirements. Those who are not farm-reared will have to spend at least three months as full-time farm workers with some responsibility for farm animals to qualify for admission. The full requirements can hardly be met by less than six months of such experience. Little credit will be allowed for experience obtained before the age of fourteen years. For guidance in selecting a farm job and keeping necessary records, it is recommended that prospective veterinary students check with the above-mentioned Office of Student Practice.

This requirement is applicable only to men students who are United States citizens; women applicants will improve their chances of acceptance by acquiring as much experience with veterinarians as they can get.

Whenever possible, prospective applicants are urged to obtain the full experience required before submitting their applications. In a highly competitive situation, those who have the full requirements will have an advantage over those who have only the minimum.

THE APPLICANT should write, after August 1 of the year preceding the one in which admission is desired, to the Office of Admissions, Day Hall, Ithaca, N.Y. 14850, requesting the application forms for admission to the Veterinary College. The Office of Admissions will require a transcript of the applicant's college record as well as other credentials. Applicants are urged to take the Veterinary Aptitude Tests as administered by the Psychological Corporation, 304 E. 45th Street, New York, N.Y. 10017. Full information will be furnished with the application form.

THE NUMBER of students that can be admitted annually is limited. It is likely that the number of applicants who can meet the require-

ments will exceed the number that can be accepted. A Committee on Admissions of the faculty of the Veterinary College will select those to be admitted after considering not only the formal preparation but also the available evidence bearing on each applicant's character, seriousness of purpose, and fitness for the work that he proposes to undertake. The committee will require a personal interview, whenever that is feasible.

PRIORITY of application is not necessarily a determining factor in the selection of students to be admitted. Nevertheless, the gathering and the weighing of the necessary evidence require time, and, as the committee will begin filling the eligible list early in the year, it is advantageous to the candidate to file his application early. February 15 is the latest date for filing applications. Students who have not completed work required for admission but expect to do so prior to July 1 may apply, and the committee will act on the applications provisionally.

FOREIGN STUDENTS are usually required to take at least one year of the preveterinary study in an approved college or university in the United States.

UNIVERSITY REQUIREMENTS. Applicants for admission must not only satisfy the entrance requirements but must also comply with certain rules of the University, as follows:

1. Every candidate for admission who receives a notice of approval of his application must pay a $50.00 registration fee. Candidates are warned not to send cash through the mails. A check, draft, or money order should be made payable to *Cornell University* and should be sent to the Office of Admissions, Day Hall, Ithaca, N.Y. 14850.

If the candidate matriculates, the fee is credited to his account to cover matriculation charges and certain graduation expenses and to establish a fund for undergraduate and alumni class activities.

If the candidate withdraws before the due date of his fee, the fee will be refunded. No refund will be made to an applicant who withdraws after the due date of the fee; in that case the whole fee will be retained by the University in payment of its costs and intangible losses resulting from such withdrawal.

2. Each entering student is expected to assume personal responsibility for fulfilling the following health requirements adopted by the trustees of Cornell University. Permission to register for a new semester will not be granted unless all health requirements pertaining to the previous semester have been fulfilled.[2]

IMMUNIZATION. A satisfactory certificate of immunization against smallpox, on the form supplied by the University, must be submitted before registration. It will be accepted as satisfactory, only if it certifies that within the last three years a successful vaccination has been performed. If this requirement cannot be fulfilled by the student's home physician, opportunity for immunization will be offered by the Cornell medical staff during the student's first semester, with the cost to be borne by the student. If a student has

[2] Graduate students are responsible for fulfilling similar health requirements. For details see the *Announcement of the Graduate School: Biological Sciences.*

been absent from the University for more than three years, immunity will be considered to have lapsed, and a certificate of revaccination must be submitted.

X RAY. Every student is required to have a chest x ray. Opportunity is given to satisfy this requirement during the student's first week on campus. The cost of the x-ray examination is included in the General Fee. When a student who has been away from the University for more than a year, wishes to re-enter, he must, at his own expense, once more fulfill the chest x-ray requirement.

MEDICAL EXAMINATION. Each undergraduate student is required to have a medical examination. (This applies also to special students who must meet other medical and health requirements such as physical education and submission of health history.) A student accepted for admission will be sent forms to be filled out by his home physician and returned promptly to the Gannett Medical Clinic. A University physician will review the material before it becomes a part of the student's permanent health record. All information given is confidential. After arrival at Cornell, if the medical history indicates a need, a student will be given an appointment to consult a physician at the Clinic. When a student has been away from the University for more than a year, he must, upon re-entrance, submit an interim health history on a University form.

TETANUS TOXOID. Undergraduate students, including special students enrolled in one-year or two-year courses, are required to be immunized to tetanus through use of tetanus toxoid. The University has adopted this rule to avoid reactions, often serious, if antitoxin (horse serum) is administered at the time of injury. Immunity through toxoid offers the advantage of protection without risk of antitoxin reaction.

Active immunization shall be acquired within one year prior to initial registration unless the student's home physician is unable to give the toxoid. If there has been no previous immunization, an original series of two or three doses, depending on the type used, spaced at least one month apart, will be necessary. This will be followed by a booster dose one year later. If there has been previous immunization, reactivation by a single booster dose is required for entrance to Cornell. After entrance a booster dose will be given whenever medically indicated.

Certification of immunization by the student's home physician is to be reported on the immunization form supplied by the University. Students unable to obtain the immunization at home will be given the opportunity, during the first semester, to obtain it from the Cornell medical staff or any Ithaca physician. If it is received from the former, a charge comparable to the average physician's fee will be made. Opportunity will also be given to obtain the booster dose that is required one year later, as well as any further booster doses as recommended by recognized medical authorities.

ADMISSION TO ADVANCED STANDING

Applicants for admission to advanced standing as members of the second-, third-, or fourth-year class must present the necessary educational qualifications for admission to the first-year class and must pass satisfactory examinations in all of the work for which they desire advanced credit, or offer satisfactory certificates of the completion of this

work in other schools whose entrance requirements and courses of study are equivalent to those of this College. No person will be admitted to any advanced class except at the beginning of the college year in September.

Some of the buildings of the Veterinary College: Schurman Hall, administration; the Flower Library; and the Walter L. Williams Clinic.

ADMISSION TO THE GRADUATE SCHOOL

Graduates of this College or other colleges may enter the Graduate School of Cornell University and pursue work for the degrees of M.S., Ph.D., or D.Sc., in Veterinary Medicine in the Veterinary College and allied departments of the University. A prospective graduate student should consult the *Announcement of the Graduate School: Biological Sciences* and apply to the Dean of the Graduate School.

Applicants for graduate study from countries other than the United States and Canada are requested to include in their credentials the results of the Graduate Record Examination (Aptitude) except in cases where this examination is not given in reasonable proximity to the student's home. Where the Graduate Record Examination is not available the student is requested to submit, instead, the results of the College Entrance Board Examination (Scholastic Aptitude Tests).

The Veterinary College, alone or in combination with other departments of the University, offers advanced students excellent opportunities for study and investigation. Its situation gives it abundant and varied material for research, and it has ample facilities for the prosecution of such work. It encourages graduate and advanced students to carry on independent investigations. Courses of study especially adapted to ad-

vanced work and research will be found among those listed on pages 41–61 of this *Announcement*.

A student who holds the degree of Doctor of Veterinary Medicine from a recognized college or school in the United States or Canada may now transfer one year's residence credit for that work toward the Doctor of Philosophy degree whenever his Special Committee certifies that the work done in the years of professional study formed an integral part of the work required for the doctorate and was of equivalent quality.[3]

The Degree of Doctor of Science in Veterinary Medicine (D.Sc. in V.M.)

Admission to candidacy for the degree of Doctor of Science in Veterinary Medicine is a function of the Division of Veterinary Medicine of the Graduate School. The following requirements must be met before admission to candidacy:

1. The candidate must have been graduated from an approved school of veterinary medicine for at least five years.

2. He must have demonstrated by published papers his ability to do independent meritorious research.

3. He must have offered to the Division satisfactory evidence of his ability to read accurately the French and German[4] literature in his field.

Candidates who have no graduate credit beyond their D.V.M. degree must complete not less than four residence units to qualify for the degree.[5] Those who have a Master of Science degree or its equivalent from an approved college or university may complete the minimum residence credit by acquiring at least two additional units.

After a candidate has been admitted, he will select a member of the faculty in veterinary medicine to serve as chairman of his Special Committee. The faculty of the Division will then select two other members of the Committee. These three individuals will have charge of the candidate's program and will be responsible to the faculty of the Division for supervising his work. The candidate's work must fall in the following categories:

1. Advanced courses in any of the sciences which have a relation to medicine. Selected courses which are part of the regular curriculum of the Cornell University Medical College may be accepted for not more than half the total credit in this category. In no case shall credit be granted for courses which are part of the regular curriculum in veterinary medicine or for similar courses in the Medical College curriculum.

2. Regular attendance and study in any of the clinics of the Veterinary College or of the Medical College.

[3] By action of the faculty, January 28, 1955.

[4] In special cases other languages may be accepted according to the provisions of Paragraphs 118 and 119 of the *Code of Legislation* of the Graduate School faculty.

[5] It is considered that at least two units of work leading to the degree of Doctor of Veterinary Medicine are an integral part of this professional degree.

All candidates must take at least two thirds of their work in courses that may properly be included under Category 1. If desired, they may take all of their work in Category 1. Not more than one-third of their work may be taken in Category 2.

Courses shall be deemed to have been satisfactorily completed only upon receipt of a regular transcript of credits. Following completion of his course work, each candidate for this degree shall present an acceptable monograph or thesis in the area of his special interest and shall submit to a general examination covering the subject matter of his work. The Special Committee shall set the time and place of his examination and invite all members of the Division and all members of the Graduate faculty of other fields who have participated in his training to attend. They shall have the right to examine the candidate and to express to the Special Committee their opinions of the candidate's competence, but the Special Committee alone shall be responsible for recommending him for the degree. The recommendation shall be addressed to the faculty of the Division of Veterinary Medicine of the Graduate School, which then shall make recommendations to the Graduate School.

Seminars

The several departments of the College hold seminars or special conferences for their advanced and graduate students. The seminar hears reports of the results of investigations and the progress of knowledge in its particular field, discusses methods of advanced and independent work such as are expected of those who are preparing theses or prosecuting any special investigation, and hears the reports of the students on the progress of their work. By means of the seminar the student incidentally gains facility in public speaking and fits himself to take a creditable part in the meetings of veterinary or human medical societies.

Combined Courses

Students who do their preveterinary work in the College of Agriculture at Cornell, may, by judicious early planning, be able to qualify for both B.S. and D.V.M. degrees in less time than would be required if the courses were taken consecutively. This can be done by double registration during the latter part of the period whereby certain course credits in the veterinary curriculum can be applied toward completing the requirements for the Bachelor's degree.

In these instances three years are ordinarily spent as a candidate for the baccalaureate degree before the application for veterinary medicine is filed. It should be clearly understood that no assurance can be given in the beginning that candidates will be permitted to complete this plan, since decision on admission to the veterinary course cannot be given until the admission requirements of the Veterinary College have been completed.

Registration

Every student is required to register with the Registrar of the University at the beginning of each term (see the Academic Calendar for the day of registration). After completing that registration, he must register on the same day with the director of student administration of the Veterinary College. After being admitted to the University no student is allowed to register after the close of the regular registration day except by special permission from the director.

Foreign Students

The University maintains an International Student Office, and foreign students are invited to write to that office for any information they may need, or to consult the staff about any problems they may have. It is suggested that foreign students report to the International Student Office, 142 Day Hall, when they arrive at Cornell.

EXPENSES

TUITION

Tuition is $200 per term for students in the Veterinary College who are and have been bona fide residents of the State of New York for at least twelve months immediately prior to the registration day of each term of the academic year.

Tuition is $300 per term for students who do not qualify as New York State residents.

Since physical presence in the state, especially for persons under age, by no means constitutes legal residence, applicants who are at all doubtful of their right to qualify as New York State residents should address inquiries to the Director, Student Administration, Veterinary College.

THE GENERAL FEE

For certain services and privileges the University charges students who are not residents of New York State a General Fee of $300 each term over and above tuition. For students who are residents of New York State, this fee is $200 each term over and above tuition.

This General Fee is paid by all students in the Divisions at Ithaca, the amount varying in the different schools and colleges. It contributes toward the services supplied by the libraries, the Gannett Clinic, the Sage Hospital, and the student union in Willard Straight Hall, pays a portion of the extra costs of laboratory courses and general administration, and supports programs of physical recreation and student activities.

Tuition and fees become due before registration for each term. Any student who fails to pay his tuition charges, fees, or other indebtedness to the University is dropped from the University unless the Treasurer has granted him an extension of time to complete payment. For such extension the student is assessed a fee of $5.00. A fee of $10.00 is charged for late payment when no extension has been granted. For further information, consult the *Announcement of General Information* (obtained by writing to Cornell University Announcements, Day Hall).

Tuition or other fees may be changed by the Board of Trustees at any time without previous notice.

CHARGES FOR MINOR DELINQUENCIES

Every student is held personally responsible for any injury done by him to any of the University's property.

Assessments, charged to the student's account and payable at the Treasurer's Office, are levied in certain circumstances, under the following rules of the University:

A matriculated student desiring to register after the close of registra-

tion day shall first pay a fee of $10.00 and present a letter of permission from the director of Student Administration.

A student desiring to file his registration of studies after the date set by his college for filing shall first pay a fee of $10.00.

A student desiring to take an examination or other test for the removal of a term mark of "absent" or "incomplete" shall first pay a fee of $2.00 for each examination or other test.

A student desiring to make an appointment for the required medical examination or conference after twenty days from the last registration day of the term shall pay a fee of $2.00.

For reasons satisfactory to the proper authority any of the above mentioned assessments may be waived in any individual case if the student's failure to comply with the regulation was due to ill health or to other reasons beyond his control. Application for such a waiver should be made to the director of Student Administration.

LIVING COSTS

Living costs cannot be stated with the same degree of certainty as regular University charges, since they depend to a great extent upon the individual's standard of living. The cost of room and board is estimated at $1,100. Laundry, done in Ithaca, may require $30.00 to $50.00 a term.

Books, instruments, and supplies will cost $100 to $125 a term.

Additional allowance must be made for clothing, travel, and incidentals.

FINANCIAL AIDS

Applications for the Scholar Incentive Program should be filed before July 1 for each academic year but will be accepted up to December 1. Applications for the spring semester only have an April 1 deadline. *Annual* application is required.

UNDERGRADUATE SCHOLARSHIPS

Needy undergraduate students who have done well scholastically may receive help from various scholarship funds. Discretion over the amount of money granted is vested in committees of the University who evaluate the merits of the applicants. Students interested in financial aid should inquire at the Office of Scholarships and Financial Aid, Day Hall. There are many scholarships and grants-in-aid open to all University undergraduates, as well as several which are specifically for veterinary students. The latter, many of which are prizes, are described in the following pages.

TUITION SCHOLARSHIPS. The trustees have authorized a limited number of scholarships, each of an annual value sufficient to cover the cost of tuition, to be awarded each year by the Veterinary College. The scholarships are awarded to undergraduate students who show promise of becoming outstanding veterinarians in the judgment of the faculty and who are not residents of New York State. Each student holding a scholarship must maintain a standing satisfactory to the faculty.

VALENTINE MOTT KNAPP SCHOLARSHIP. This annual scholarship of the value of $500 was established through the will of David V. Knapp as a memorial to his brother, Dr. Valentine Mott Knapp, '04. By action of the faculty, the award is to be made each year to a qualified applicant at the completion of his third year's work. Students who wish to be considered for this scholarship should make application to the Committee on Scholarships not later than March 1. In awarding the scholarship, the faculty will take into consideration the ability of the applicant to do creditable academic work, the personal characteristics of the applicant with respect to professional attitude and his financial need.

YONKERS RACEWAY FOUNDATION SCHOLARSHIP. By action of the executive committee of the Yonkers Raceway Foundation, an endowed scholarship of $300 was established at the Veterinary College to be awarded by the Committee on Scholarships of the College to a needy student who is a resident of New York State. Students who wish to be considered for this scholarship should make application to the Committee on Scholarships not later than March 1. The same criteria will be used in awarding this scholarship as are used in selecting the candidates for the Valentine Mott Knapp scholarship.

EASTERN MILK PRODUCERS COOPERATIVE SCHOLARSHIP. This scholarship of $250 was established in February, 1961, and was awarded for the first time in the 1961–62 academic year. The purpose is to assist a worthy student in the Veterinary College with preference to be given to sons or daughters of members of Eastern Milk Producers Cooperative Association. In order to qualify, a student must rank in the upper two-fifths of his class in college. He must have an established need for financial assistance and show evidence of outstanding character and leadership ability.

DAVID KENNEDY JOHNSTON SCHOLARSHIPS. Under the will of Nettie J. Huey, funds were set aside to provide scholarships from time to time to students in the College of Agriculture or to students in the Veterinary College. Four scholarships of $600 each are available.

THE KENNEL CLUB OF BUFFALO, INC. SCHOLARSHIP. Started in 1965, the Kennel Club of Buffalo will offer this scholarship annually for five years to a deserving student from Western New York. The amount of the scholarship is $100.

THE MAURICE H. SKYER MEMORIAL SCHOLARSHIP. Provided by the Monticello Chapter of the U.S. Harness Writers Association.

this scholarship of $300 is to be awarded to a student from Orange, Sullivan, Ulster, Delaware or Dutchess County in New York, or from Pike, Wayne, Lackawanna, or Luzerne County in Pennsylvania. The student must be interested in working with horses. The scholarship is awarded for use in the fourth year.

MARIE HEYE CLEMENS FOUNDATION SCHOLARSHIP. This fund was established in 1965 to support one or more scholarships for students in the New York State Veterinary College. First preference will be given to needy and worthy scholarship candidates entering their final year of study. As an effort to perpetuate the award, the Scholarship Committee encourages recipients to return part or all of their scholarship awards as alumni gifts to the Scholarship Fund at such time as they are financially able to do so. ($500.)

PFIZER SCHOLARSHIP awarded to a student in the third year in the professional curriculum who has completed five terms and whose academic work is satisfactory and who has definite need for financial assistance. ($400.)

THE JIM DALE THOMAS MEMORIAL SCHOLARSHIP was established as a prize in 1965 and became a scholarship in 1969. The scholarship is awarded to a third-year veterinary student for use in the fourth year; to one who has shown an interest in dairy cattle practice and has a high level of capability in this field. The award is made on the judgment of the faculty of the Department of Large Animal Medicine, Obstetrics, and Surgery.

LOAN FUNDS

Sources of support available for loans to Veterinary College students are as follows: the Cornell Veterinary Alumni Association; the New York State Veterinary Medical Society; the family of David E. Wright, '12; the Dean W. A. Hagan Fund; the Munderback Veterinary Fund; the Sunderville Veterinary Fund; National Association of Federal Veterinarians Emergency Loan Fund; Student Emergency Loan Fund of the Women's Auxiliary to the New York State Veterinary Medical Society; and the Charles H. Webster, Veterinary Fund. Veterinary students are also eligible to apply for loans from other funds held by the University. All of these are administered through the Office of Student Aid. Students who are in real need should not hesitate to apply for assistance. It is suggested that students discuss their needs with the director of Student Administration before applying.

PRIZES

Cornell University has been given a considerable number of funds for the endowment of prizes to be awarded annually to enrolled students.

Some of these prizes are open to competition by students of the University generally. The University publishes a list of them and requests for copies should be addressed to the Office of the Dean of the University Faculty, Day Hall.

Prizes open to competition only by students of the Veterinary College are as follows:

THE BORDEN VETERINARY SCHOLARSHIP AWARD was established by the Borden Company Foundation, Inc., in 1945. It consists of an annual award of $300 to be made to the member of the fourth-year class in veterinary medicine who attained the highest scholastic record in all veterinary studies prior to the final year. The award will be paid to the recipient during the fall term of the final year. In the event that the Dean finds it inappropriate to make the award in any one year, the award may be deferred, but only one award shall be made in any succeeding year.

THE HORACE K. WHITE PRIZES, established by Horace K. White of Syracuse, are awarded annually to meritorious students in the graduating class of the College. They consist of a prize of $100 to the first in merit and a prize of $60.00 to the second in merit.

THE GRANT SHERMAN HOPKINS PRIZE of $70.00 in veterinary anatomy was endowed by Mrs. Ann Ottaway Hopkins in 1955 in memory of her husband. Dr. Hopkins served Cornell University for forty-five years (1889 to 1934). Upon the opening of the Veterinary College in 1896, he became a member of the original faculty as Assistant Professor of Veterinary Anatomy and Anatomical Methods. He was made a full professor in 1903 and served in that capacity until his retirement in 1934.

The prize will be awarded by the Veterinary College faculty upon the recommendation of the staff of the Department of Veterinary Anatomy. It will be awarded to a member of the graduating class on the basis of interest, ability, perseverence and performance in the work in veterinary anatomy. Special consideration will be given to extracurricular work in animal morphology. Although scholarship is an important consideration, the award is not based wholly on that.

THE JANE MILLER PRIZE of $90.00 in physiology is awarded to the student or students doing the best work in this subject. The amount is usually divided into two prizes which are awarded at the end of the second year.

THE JAMES GORDON BENNETT PRIZE of $150 is awarded to members of the graduating class. The award is based upon the work in the clinics giving evidence of the ability of the recipient to handle diseased animals humanely. Special emphasis is laid upon the ability of the student to apply effectively local and general anesthesia.

THE ANNE BESSE PRIZE of $80.00 is awarded in the principles and practice of veterinary medicine. It is based upon the work in the clinics giving evidence of ability in clinical diagnosis.

THE CHARLES GROSS BONDY PRIZES. Two annual prizes are awarded to the two fourth-year students who rank highest in proficiency in the courses in practical medicine and surgery of small animals. The total prize is $80.00.

THE MARY LOUISE MOORE PRIZE IN BACTERIOLOGY was established by a bequest of Dr. Veranus A. Moore in honor of his wife. Dr. Moore was a member of the original faculty of the Veterinary College. He was Professor of Pathology, Bacteriology, and Meat Inspection from 1896 to 1926, and Dean of the Veterinary College from 1907 to 1929.

The income of the endowment ($80.00) may be awarded each year, upon recommendation of the head of the Department of Microbiology and with the approval of the Dean of the College, either as a prize to students who have done the best work in the department or as a subsidy to encourage individual research work of students by defraying expenses of their experiments.

THE POULTRY DISEASE PRIZE was established by Dr. Nathan Wernicoff '31, and Dr. Tevis Goldhaft '35, of Vineland, N.J., for the purpose of stimulating interest in diseases of poultry. The prize consists of $50.00 for the best composition or essay, or the best original work reported by a member of the fourth-year class. Competing papers must be submitted not later than the first week of the second term of the college year to the Dean, who will appoint a suitable committee to read them and make recommendations on the award. The award will not be made if, in the judgment of the committee, none of the papers submitted is considered to be sufficiently meritorious.

THE ALPHA PSI PRIZE is given by Beta (Cornell) Chapter of the Alpha Psi Fraternity. It was suggested by the donors that this prize, a $25.00 U.S. Savings Bond, be "awarded by the faculty to a member of the fourth-year class who has shown by his scholarship, personality, character, the breadth of interest that he is capable of elevating the prestige and expanding the services of veterinary science in practice, in education, and in its relationship to community, state, and national welfare."

NEW YORK STATE VETERINARY MEDICAL SOCIETY PRIZES, established by the New York State Veterinary Medical Society, of $100 value. They are awarded to members of the fourth-year class who present and have approved the best case reports. The award extends from April 1 to March 31. All case reports to be considered must be received at the office of the chairman of the Committee of Senior Seminar Course 899, by March 31. Each case report must be reviewed and approved by the head of the department in which the case was received, studied, and treated, or by a person in the department designated by him. The Executive Board of the New York State Veterinary Medical Society reserves the privilege of requesting any prize recipient to furnish either a copy of his paper or an abstract for publication in the organ of the society, *Veterinary News*.

THE WOMEN'S AUXILIARY A.V.M.A. PRIZE OF $100 is awarded annually to a senior student for a special contribution which advances the standing of the Veterinary College on the campus by special contributions of an extracurricular nature.

THE JACOB TRAUM STUDENT AWARD was established by friends and colleagues at the time of Dr. Traum's retirement as Chief Scientist of the U.S. Department of Agriculture Plum Island Animal Disease Laboratory. Dr. Traum was graduated from Cornell University in 1905 and served the veterinary profession in a variety of capacities, particularly in the U.S.D.A. and at the University of California. The award will be given annually to the senior student in the New York State Veterinary College who is adjudged, by means considered appropriate by the Dean, as having exhibited in his scholastic career superior interest and accomplishments in bacteriology, epizootiology, pathology, and virology, including aptitude for and expressed interest in research on infectious diseases. The prize is a cash award of $70.00.

THE MERCK MANUAL AWARDS given by Merck and Company, Inc., are presented to members of the graduating class. The recipients of the awards (veterinary manuals embossed with recipients names) are determined by the dean and director of student administration.

THE MALCOLM E. MILLER AWARD was established in 1965 by Mrs. Mary Wells Miller in memory of her husband, Dr. Malcolm E. Miller ('34), a former Professor of Anatomy and head of that Department from 1947 to 1960. The recipient is to be a fourth-year student who, in the judgment of the dean and the director of student administration has demonstrated perseverance, scholastic diligence, outstanding improvement and other personal characteristics that will bring credit and distinction to the veterinary profession. The prize is a cash award of $50.00.

THE UPJOHN CLINICAL AWARDS were established in 1966. The Upjohn Pharmaceutical Company offers prizes for unusual proficiency in the Large Animal Clinic and in the Small Animal Clinic. The winners are selected by the staffs of the respective departments. A cash prize of $200 is divided between the two clinics.

HEALTH SERVICES AND MEDICAL CARE

Health services and medical care for students are centered in two Cornell facilities: the Gannett Medical Clinic (out-patient department), 10 Central Avenue, and the Sage Hospital. The Hospital is on Sage Place, with the entrance on East Seneca Street between Stewart Avenue and Schuyler Place, about five blocks from the edge of the campus. Students are entitled to unlimited visits at the Clinic. Appointments with individual doctors at the Clinic may be made, if desired, by calling or coming in person. (An acutely ill student will be seen promptly whether he has an appointment or not.) Students are also entitled to laboratory and x-ray examinations indicated for diagnosis and treatment; hospitalization in the Sage Hospital with medical care for a maximum of fourteen days each term and emergency surgical care. The cost of these services is covered in the General Fee.

Emergency Service: Students who need medical attention during the hours the clinic is closed, may go to Sage Hospital. If an accident or serious illness occurs, the physician on emergency service may be reached by calling 275-3493 during Clinic hours or 272-6962 after Clinic hours.

On a voluntary basis, insurance is available to supplement the services provided by the General Fee. For further details, including charges for special services, see the *Announcement of General Information.*

If, in the opinion of the University authorities, the student's health makes it unwise for him to remain in the University, he may be required to withdraw.

HOUSING FOR STUDENTS

UNDERGRADUATE MEN. Attractive, quiet residence halls for approximately 2,000 men are provided by the University. They are a five-minute walk from the center of the campus and are situated on a fifteen-acre plot to the west of the main campus, overlooking Cayuga Lake to the north and the valley to the southwest. The area is bounded by West, University, and Stewart Avenues and Campus Road. There are two groups of residence halls: the Baker Group and University Halls.

The Baker Group comprises Baker Tower, Founders Hall, North and South Baker Halls, Boldt Hall and Tower, Mennen Hall, Lyon Hall, and McFaddin Hall. The buildings are English collegiate in design; they accommodate about 650 men.

University Halls, consisting of six buildings, were opened in 1954 and accommodate 1,350 men. They are of modern construction and offer excellent study, social, and recreational facilities.

Students not assigned to residence halls under direct supervision of the University secure quarters in fraternity houses (for members only),

rooming houses, cooperative houses, private homes, or apartments (see "Off-Campus Housing" below).

An application form for University residence halls will be mailed automatically by the Office of Admissions to each male candidate for admission as a freshman or a transfer student at the time of notification of provisional acceptance to the University. Housing in University residence halls can be guaranteed for entering freshmen students who have been admitted to the University and have filed dormitory applications by June 1.

Cornell men are at liberty to dine wherever they choose; but, within its varied food service program, Cornell offers a special dining arrangement for its student men. This meal plan, which is entirely optional in every way and available to any Cornell man, incorporates many desirable features. It provides for the prepayment of dining fees on a semester basis, and it affords worthwhile savings in food costs. The plan offers a selection of dining rooms: Willard Straight Hall, the student union building; Baker Cafeteria in University Hall, Unit I; the Noyes Lodge on Beebe Lake; the Martha Van Rensselaer Cafeteria; and the Dairy Bar Cafeteria in Stocking Hall. Devised to meet student needs, this dining arrangement is designed for economy and convenience and allows for a liberal mealtime schedule, with wide menu selection, in comfortable surroundings.

UNDERGRADUATE WOMEN. Cornell University provides comfortable, well furnished residence halls and dining rooms for undergraduate women students. Most undergraduate women whose regular residence is outside the Ithaca area are required to live and take their meals in University residence halls, or in sorority houses (for members only). Information about exceptions to that rule may be obtained from the Office of the Dean of Students.

An application form for living accommodations for undergraduate women will be sent to each candidate by the Office of Admissions with the notice of provisional acceptance to the University.

GRADUATE STUDENTS. The University has two residence halls for graduate students. The Sage Graduate Center accommodates 190 men and women, and Cascadilla Hall houses 160 men. The dining service in the Sage Graduate Center is available to all graduate students and faculty. Graduate students who wish to apply for housing should write to the Department of Housing and Dining Services, 223 Edmund Ezra Day Hall, when their plans to enter the University are complete.

MARRIED STUDENTS. Unfurnished apartments for 393 married students and their families are provided by Cornell in the Cornell Quarters (81 apartments), Pleasant Grove (94 apartments), and Hasbrouck (218 apartments).

OFF-CAMPUS HOUSING. All students living off campus must reside in properties that have been approved by the University. Information on approved housing that is currently available may be obtained at the Off-Campus Housing Office in 223 Edmund Ezra Day Hall. Be-

cause changes of available accommodations occur daily, it is not practical to prepare lists. If possible, a student should make at least one trip to Ithaca to look over the available apartments and houses before he plans to take up residence.

DETAILED INFORMATION on all types of housing for students may be obtained by writing to the Department of Housing and Dining Services, Edmund Ezra Day Hall.

THE CONDUCT OF STUDENTS

At all times and in all relationships a Cornell student is expected to conduct himself in a decent and respectable manner and in accordance with the obligation recognized by the student body of unfailing respect for the integrity of the individual and the best interests of the community.

The standards of conduct expected of a Cornell veterinary student are defined by the Student Honor Code and implemented by a Student Judiciary Administrative Board granted initial jurisdiction for student conduct by the Faculty Committee on Student Conduct. A student may at any time be removed from the University if, in the opinion of the Committee, such action is in the University's best interests.

In the Veterinary College a Student Honor Code has been established in recognition of the importance of ethics, honor, and personal integrity in the individual's training for the veterinary profession. The Code places the responsibility for ethical conduct upon the students rather than the faculty. A copy of the Honor Code is given to each student at the time of registration, and it is the student's duty to familiarize himself with the contents of the Code.

A faculty consultant and the Veterinary Faculty Committee on Student Conduct are available to veterinary students for consultation and guidance in occasional instances for referral of disciplinary cases beyond the jurisdiction of the Student Honor Code.

REQUIREMENTS FOR GRADUATION

The prescribed four-year curriculum leading to the degree of Doctor of Veterinary Medicine (D.V.M.) is summarized in the section below. To receive this degree candidates must satisfy all the entrance requirements (pages 20–24), must successfully pursue the courses named in the curriculum below, must have paid all fees due, and must have spent at least one year in residence.

The work of the College is arranged to begin in September and to close in June. The academic year is divided into two terms.

At the conclusion of each term the Veterinary College faculty will review the records and conduct of students. Unsatisfactory students will be dropped from the College.

THE CURRICULUM

In the following summary of the curriculum, the figure in the first column after the name of the course is the number of the course and refers to a description on one of the following pages: 41–64 The figures in the second and third columns indicate the hours of credit given for the successful pursuit of the several courses in either term. The abbreviation "Req." indicates that a course, or its equivalent, is required for graduation but that no formal credit is given for the course.

FIRST YEAR

	Course number	*Credit*	
		Fall term	*Spring term*
Anatomy	501	7	—
Anatomy	502	—	6
Neuroanatomy	505	—	2
Developmental Anatomy and Histology	507	4	—
Microscopic Anatomy	508	—	4
Animal Science	100	3	—
Mammalian Biochemistry	510	6	—
Animal Feeding	311	—	3
Physiology	511	—	5
Total		20	20

SECOND YEAR

	Course number	Credit Fall term	Credit Spring term
Applied Radiation Biology	621	1	—
Physiology	611	4	—
Bacteriology and Immunology	640	4	—
Bacteriology and Immunology Laboratory	641	5	—
General Pathology	630	2	—
General Pathology Laboratory	631	2	—
Animal Genetics	424	2	—
Special Pathology	632	—	2
Special Pathology Laboratory	633	—	2
Animal Parasitology	635	—	2
Pharmacology	612	—	6
Toxicology	613	—	1
Food Quality Control	634	—	3
Clinical Pathology	636	—	2
Roentgenology	670	—	1
Obstetrics	671	—	3
Total		20	22

THIRD YEAR

	Course number	Credit Fall term	Credit Spring term
Applied Anatomy	703	1	—
Applied Parasitology	731	3	—
Clinical Orientation	790	1	—
Diseases of Large Animals	771	5	—
Epidemiological Methods	740	2	—
Food Quality Control	730	2	—
General Surgery	773	4	—
Obstetrics	770	3	—
Small Animal Medicine	760	3	—
Surgical Exercises	774	1	—
Applied Anatomy	704	—	1
Clinical Orientation	791	—	2
Diseases of Large Animals	772	—	2
Diseases of Poultry	750	—	3
Infectious Diseases	741	—	3
Small Animal Medicine	761	—	3
Small Animal Surgery	762	—	4
Special Surgery	775	—	5
Surgical Exercises	763	—	1
Total		25	24

FOURTH YEAR

	Course number	*Credit*	
		Fall term	*Spring term*
Senior Seminar	898	Req	—
Diseases of Large Animals	870	5	—
Clinics:			
Ambulatory	894	4	—
Ancillary	896	4	—
Large Animal	892	4	—
Small Animal	890	4	—
Senior Seminar	899	—	Req
Diseases of Large Animals	871	—	4
Jurisprudence, Ethics, and Business Methods	872	—	1
Clinics:			
Ambulatory	895	—	4
Ancillary	897	—	4
Large Animal	893	—	4
Small Animal	891	—	4
Total		21	21

DESCRIPTION OF COURSES

In the following pages a list of the teaching departments of the College is given. Under each department heading, brief descriptions of the courses offered will be found. Most of these courses are a part of the veterinary curriculum; a few are elective to veterinary students or are given primarily for graduate students or students of other colleges of the University.

The clinics are operated by several departments. A brief statement about the particular clinical work of each department concerned will be found in the general description of the activities of that department. A general statement of the operation of the clinics, with courses and numbers, is given under a special heading, following the departmental descriptions. Finally, there is a listing of courses given by other colleges as a part of the veterinary curriculum.

For courses in other colleges available to all Cornell students consult the appropriate college *Announcement*.

ANATOMY

Professors R. E. Habel, H. E. Evans; Associate Professors A. de Lahunta, W. O. Sack; Assistant Professor J. F. Cummings; Assistants B. W. Gray, M. Bryden.

501. GROSS ANATOMY

First year, fall term. Credit seven hours. Lecture, M 9:05. Conference, W 9:05. Laboratory, M T and Th 10:10–1:10, F 11:15–1:10, S 9:05–12:05. Professor Evans; Associate Professor de Lahunta; Assistants Gray and Bryden. Prerequisite, coursework equivalent to that required for admission to the Veterinary College.

The structure of a typical mammal is studied by detailed systematic and regional dissection of the dog. The basic features of avian anatomy are studied by a dissection of the parakeet and chicken, and the anatomy of laboratory animals is reviewed in appropriate species.

The lectures, supplemented by demonstrations, consider the comparative and regional gross aspects of vertebrate organ systems, anatomical terminology, literature, and techniques.

502. GROSS ANATOMY

First year, spring term. Credit six hours. Lecture, F 9:05. Laboratory, M T 10:10–12:35, W and F 2–4:25, S 9:05–12:05. Associate Professor Sack; Assistants Gray and Bryden. Prerequisite, Anatomy 501.

Regional anatomy of the horse, cow, sheep, and pig is studied by dissection.

505. NEUROANATOMY

First year, spring term. Credit two hours. T 9:05, F 10:10–12:35. Associate Professor de Lahunta, Assistants Gray and Bryden.

The morphology and function of the nervous system of domestic animals is studied by functional systems. With each system, clinical cases are demonstrated with lesions involving a portion of the system.

A class in veterinary anatomy.

507. DEVELOPMENTAL ANATOMY AND HISTOLOGY

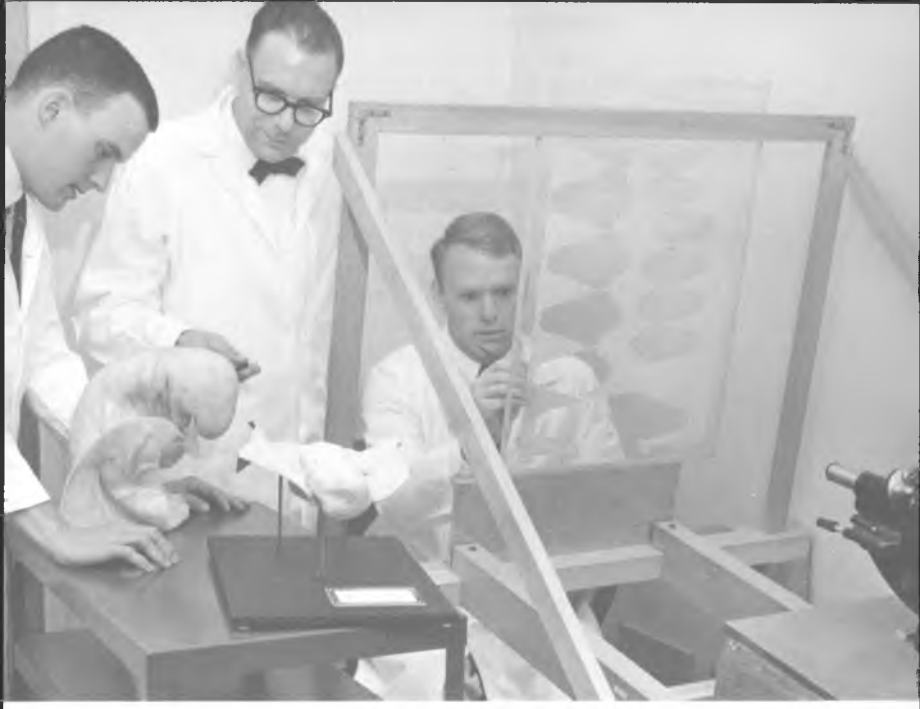
First year, fall term. Credit four hours. Lectures, T Th 9:05. Laboratory, W F 2–4:25. Associate Professor de Lahunta, Assistant Professor Cummings; Assistant Bryden. Prerequisites, coursework equivalent to that required for admission to the Veterinary College, plus completion of or concurrent registration in Veterinary Anatomy 501 or 900. A limited number of non-veterinary students will be admitted by permission of the instructor.

The study of development is designed to provide a foundation for the understanding of definitive anatomy and the formation of anomalies. Students are provided with serial sections of the chick and pig for laboratory use. The latter part of the course is devoted to cytology and histology.

508. MICROSCOPIC ANATOMY

First year, spring term. Credit four hours. Lectures, M W 9:05. Laboratory, M W 10:10–12:35. Assistant Professor Cummings; Assistant Gray. Prerequisites, Veterinary Anatomy 507, plus completion of or concurrent registration in Veterinary Anatomy 502 or 900. A limited number of non-veterinary students will be admitted by permission of the instructor.

The microscopic structures of the tissues and organs of domestic animals are studied. Illustrated lectures are presented to relate structure to function, correlate microscopic and gross anatomy, and establish a foundation for subsequent studies in physiology and pathology. Slides of tissues and organs are provided.



Wax plate reconstruction of the embryo (Department of Anatomy).

ADVANCED ANATOMY

605. Fall term. Hours and credit to be arranged.

606. Spring term. Hours and credit to be arranged.
Professors Habel and Evans; Associate Professors Sack and de Lahunta; Assistant Professor Cummings. Prerequisites Anatomy 501, 502, 507, and 508 or similar preparation in comparative anatomy and histology.

An opportunity for advanced study under personal direction.

APPLIED ANATOMY

703. Fall term, 3rd year. Credit one hour. Laboratory, T 10:10–12:35 or Th 10:10–12:35 or S 10:10–12:35. Professor Habel.
704. Spring term, 3rd year. Credit one hour. Laboratory, T 2–4:25 or Th 2–4:25. Professor Habel.

An opportunity for practice in the recognition of the anatomical features that are essential to diagnostic, surgical, obstetrical, and postmortem procedures. The approach is topographical, comparative, and clinical. The emphasis is on the study of living animals, supplemented by dissections, serial transections, models, and radiographs.

900. VERTEBRATE MORPHOLOGY

Fall term. Credit three hours. Laboratory, W F 1:10–4:25. Professor Evans. Prerequisite, zoology or biology.

Designed primarily for graduate students in animal science, nutrition, conservation, and zoology. Laboratory assignments include the dissection of the dog, and cow. Facilities are available to embalm and dissect other species if desired. Lectures and demonstrations of the phylogeny, structure, and function of vertebrate organ systems supplement the laboratory work.

PHYSIOLOGY, BIOCHEMISTRY, AND PHARMACOLOGY

Professors A. F. Sellers, C. E. Stevens, E. N. Bergman; Associate Professors M. W. Anders, A. L. Aronson, A. Dodson, L. L. Nangeroni, J. F. Wootton; Assistant Professor W. J. Arion; Assistants C. F. Kaufman, G. A. Maylin, R. C. Rychert, W. E. Spomer, P. Svendsen, S. O. Thoracius, W. Young; Teaching Associate W. Fuerst.

The following fields of activity are covered in the work of the department: physiological chemistry, physiology, pharmacology, and toxicology.

310. ANIMAL PHYSIOLOGY

Spring term. Credit three hours. M W F 10:10. Associate Professor Nangeroni. Prerequisites, one year of biology or zoology and college courses in chemistry.

Lectures and demonstrations arranged especially for students of agriculture but open to others.

510. MAMMALIAN BIOCHEMISTRY

First year, fall term. Credit six hours. Lectures and recitations, M W 8, Th 2–4:25, F 9:05. Laboratories, M T 2–4:25. Associate Professor Wootton, Assistant Professor Arion and assistants. Prerequisites, course work equivalent to that required for admission to the Veterinary College. A course in quantitative analysis, and additional hours of organic chemistry would be helpful.

This course in general biochemistry emphasizes the mammalian system. The laboratory is devoted to study of the chemical properties of biological materials and also to instilling a working knowledge of the elements of quantitative analysis, which is necessary for the performance of clinical biochemical determinations.

511. PHYSIOLOGY FOR VETERINARY STUDENTS

First year, spring term. Credit five hours. Lecture, T Th F 8. Laboratory, Th 9:05–12:35. Professor Stevens and assistants. Prerequisites, Physiology 510, Anatomy 501 and 502, or Anatomy 900 or Zoology 311 and Biochemistry 433.

611. PHYSIOLOGY FOR VETERINARY STUDENTS

Second year, fall term. Credit four hours. Lecture, T Th F 8. Laboratory, T 9:05–12:35. Professors Bergman and Sellers. Prerequisite, Physiology 511.

612. PHARMACOLOGY

Second year, spring term. Credit six hours. Lectures, T 8, W 9:05, F 9:05. Laboratory, M 11:15–4:25. Conference, M 8. Associate Professors Aronson and Anders. Prerequisites, Anatomy 501, 502, 505, 507, 508; Physiology 510, 511, 611; Pathology 630 and 631 or consent of the instructors.

The primary emphasis of this course is on the physiological disposition and mechanism of action of drugs.

613. TOXICOLOGY

Second year, spring term. Credit one hour. Lecture, M 10:10. Associate Professors Aronson and Anders. Prerequisites, same as for Physiology 612.

The basic aspects of some of the more common poisonings that affect domestic animals will be considered. Emphasis will be placed on heavy metal poisonings, chelation phenomena, selected organic poisonings, pesticide poisonings, and forensic considerations.

Studying the action of the rumen; fiber glass model on the table (Department of Physiology).

SPECIAL PROBLEMS IN PHYSIOLOGY

910. Fall term. Hours arranged. Registration by permission.

911. Spring term. Hours arranged. Registration by permission.
Laboratory work, conferences, collateral reading, and reports, adapted to the needs of students.

RESEARCH

912. Fall term, graduate students. Hours arranged.

913. Spring term, graduate students. Hours arranged.

914. EXPERIMENTAL PHYSIOLOGY FOR GRADUATE STUDENTS
Fall term. Alternate years. Not offered in 1967. Credit three hours. Laboratory, W F 1:10–4:25. Associate Professor Nangeroni. Prerequisites, same as for Physiology 511, coregistration in Physiology 610. Registration limited. Consent of instructor required.

915. METHODS IN PHYSIOLOGICAL RESEARCH
Spring term. Credit four hours. Prerequisites, Biological Sciences 414 and a course in biochemistry, or Veterinary Medicine 914, or equivalent, and consent of instructor. Enrollment limited. Two lectures and one six-hour laboratory per week, time to be arranged. Professor Sellers and staff.
Emphasis will be on the principles and application of physiological methods for measurement of organ and tissue functions related to digestion, absorption, distribution, metabolism, and excretion.

916. PHYSIOLOGY, BIOCHEMISTRY, PHARMACOLOGY

Spring term. Credit three hours. M W F 10:10. Prerequisites, a course in biochemistry and consent of the instructor. Associate Professor Anders and staff of Toxicology Training Program.

Lectures on the absorption, distribution, metabolism, excretion and selective toxicity of drugs, as well as consideration of environmental aspects of the problem of toxicology.

917. PHYSIOLOGY

Spring term. For graduate students. T Th F 8. Professors Bergman, Sellers, Stevens; Associate Professors Dobson and Nangeroni. Prerequisites, Physiology 510, Anatomy 501 and 502, or Anatomy 900 or Zoology 311, and Biochemistry 433. (Laboratory: register for Courses 914.)

Lectures and demonstrations on cellular physiology, muscle, nervous system, digestive system, urine secretion, blood and lymph.

918. PHYSIOLOGY

Fall term. For graduate students. Credit three hours. T Th F 8. Professors Bergman and Sellers. Prerequisite, Physiology 511.

Lectures and demonstrations on circulation, respiration, endocrine organs, temperature regulation and reproduction.

PHYSICAL BIOLOGY

Professors C. L. Comar, E. L. Gasteiger, Jr., F. W. Lengemann. R. H. Wasserman; Associate Professors P. H. Craig, D. N. Tapper, J. C. Thompson, Jr.; Assistant Professors A. P. Casarett, F. A. Kallfelz; Senior Research Associate F. L. Hiltz; Research Associates R. A. Corradino, R. A. Korman; Research Specialist R. A. Wentworth; Assistants J. Balaben, P. J. Bredderman, J. C. Ebel, J. Faull, D. L. Hirabayashi, H. Kasprzak, M. Mann, H. Moraff, B. O. Paul, M. A. Speed, S. N. Taylor.

The Department is well equipped for advanced work in the applications of radiation and physical methods to problems of animals and biological research.

621. APPLIED RADIATION BIOLOGY

Second year, fall term. Credit one hour. W 9:05. Assistant Professor Kallfelz.

Lectures and demonstrations on the nature of radiation, biological effects, veterinary applications, and monitoring procedures.

920. ELEMENTS OF PHYSICAL BIOLOGY

Fall term. Credit three hours. T Th F 11:05. Professor Comar and staff. Prerequisites, basic courses in chemistry, physics, biology and calculus, or consent of the instructor.

Lectures on atomic, molecular and cellular aspects of matter; physio-chemical concepts in biology; membrane phenomena; photobiology; compartmental analysis; tissue culture; informational macromolecules; biological coding and control.

921. RADIOISOTOPES IN BIOLOGICAL RESEARCH PRINCIPLES AND PRACTICE

Spring term. Credit four hours. Lectures, T Th 11:05. Laboratory, M T or W 1:30–5. Prerequisites, a course in quantitative chemistry and permission of instructor. Professor Lengemann and staff.

Positioning a lamb in the total body counter (Laboratory of Radiation Biology, Department of Physical Biology).

Lectures, demonstrations, and laboratory on the fundamentals of atomic energy procedures and applications to biological research.

922. BIOLOGICAL EFFECTS OF RADIATION

Fall term. Credit two hours. T Th 10:10. Laboratory, Th 1:30–4:25. Assistant Professor Casarett.

Lectures and demonstration on radiation physics, radiation chemistry, radiation effects at the cellular level, radiation effects in multicellular organisms, genetic effects of radiation, and radioprotective and radiomimetic substances.

923. BIOLOGICAL MEMBRANES AND NUTRIENT TRANSFER

Spring term. Credit two hours. Lectures (time to be designated). Prerequisites, animal or plant physiology, quantitative and organic chemistry, physics, and consent of instructor. Cellular physiology and elementary physical chemistry desirable. Professor Wasserman.

An introduction to elementary biophysical properties of biological membranes, theoretical aspects of permeability and transport, and mechanism of transfer of inorganic and organic substances across intestine, placenta, kidney, erythrocytes, bacteria, and other biological systems. (Offered in alternate years; next scheduled for 1970.)

924. FUNCTIONAL ORGANIZATIONS OF THE NERVOUS SYSTEM

Fall term. Credit three hours for lecture; two hours for laboratory. Lectures, M W F 10:10. Laboratory, W afternoon biweekly. Prerequisites, physiology, organic chemistry, physics, and/or consent of instructor. Physical chemistry and neuroanatomy desirable. Professor Gasteiger.

Function of the nervous system will be considered primarily from an electro-

physiologic viewpoint. Where appropriate, important studies of reflexology, chemical and feedback control, and comparative anatomy will be utilized. Laboratory studies will include electrical activity of cells, reflexes, decerebrate rigidity, acoustic microphonic response, subcortical stimulation, and evoked and spontaneous cortical activity. (Not offered in fall, 1968.)

926. PHYSICAL BIOLOGY GRADUATE SEMINAR

Fall and spring terms. Credit one hour. Professor Comar and staff.

927. SEMINAR—SPECIAL TOPICS IN PHYSICAL AND RADIATION BIOLOGY

Fall and spring terms. Credit hours variable. Assistant Professor Casarett.

427. SENSORY FUNCTION (Biological Sciences)

Fall term. Credit three hours. One hour lectures, T Th 10:10. Prerequisite, Biology 320 or equivalent. Given cooperatively with Cornell's Division of Biological Sciences. Professors Halpern (Arts and Sciences) and Tapper (Physical Biology).

Sensory receptors and the central nervous system transformation of afferent activity will be considered in relation to human and animal psychophysical data and to the adaptive significance of behavior. The receptor will be examined in terms of anatomy, biochemistry, biophysics to transduction, and the central nervous system control of peripheral input. Information and signal detection theories will be applied.

PATHOLOGY

Professors C. G. Rickard, J. H. Whitlock, J. Bentinck-Smith, C. I. Boyer, Jr., L. P. Krook, F. Noronha; Associate Professors J. R. Georgi, J. B. Tasker, J. E. Post, L. Coggins, J. King; Visiting Associate Professor P. Henrikson; Assistant Professor E. A. Holzinger; Senior Research Associate S. R. Nusbaum; Director of the Diagnostic Laboratory A. Zeissig; Research Associates F. E. Waterman, B. A. Coote, G. A. Johnson; Assistants L. F. LeJambre, J. O. D. Slocombe, E. Dougherty III, D. Averill. Also, R. W. Norrdin, R. H. Whitlock, W. O. Jones, G. P. Searcy, R. Ochoa.

The laboratories of the Department are well equipped with modern apparatus providing opportunity for advanced work, for those students who are properly prepared, in gross and microscopic pathology, clinical pathology, immunology, oncology, electron microscopy, and parasitology. The Department operates one diagnostic laboratory for general diagnostic work, to which a great deal of pathological material and many blood samples for serological testing come from all parts of the state. In addition, a teaching laboratory of clinical pathology is operated to service the clinics of the college.

These laboratories furnish an abundance of fresh materials for teaching and research in animal diseases. The clinics and the routine autopsies also furnish material.

The following courses are given particularly for veterinary students. (Courses in the 600 and 700 series are required.) When there is room for them, properly prepared students of other colleges will be admitted, but permission to register must be obtained in each case.

630. GENERAL PATHOLOGY LECTURES

Second year, fall term. Credit two hours. M F 9:05. Professor Rickard. Prerequisites, Anatomy 507 and 508 or equivalent histology courses. In addition, it is desirable that the student shall have at least one year's work in anatomy and physiology. In special cases of students who are majoring in biology and expect to take no further work in pathology, these prerequisites may be waived in part. When this is done, the course will not be accepted as a prerequisite for other courses.

631. GENERAL PATHOLOGY LABORATORY

Second year, fall term. Credit two hours. Section I, M 10:10–12:35, F 10:10–12:35. Section II, T 10:10–12:35, S 9:05-11:30. Professor Rickard. Course 630 must be taken simultaneously or have been completed previously.

632. SPECIAL PATHOLOGY LECTURES

Second year, spring term. Credit two hours. T Th 9:05. Associate Professor King. Prerequisite, Course 630.

633. SPECIAL PATHOLOGY LABORATORY

Second year, spring term. Credit two hours. T 2–4:25, F 10:10–12:35. Associate Professor King. Course 632 must be taken simultaneously or have been completed previously.

FOOD QUALITY CONTROL

634. Second year, spring term. Credit three hours. Lecture, M 9:05, Th 8. Laboratory, T 10:10–12:35.

730. Third year, fall term. Credit two hours. Lecture, F 11:15. Laboratory, F 2–4:25.
Dr. Johnson and staff.

Veterinary inspection to control quality and wholesomeness of meat, meat food, dairy, fish, and poultry products; and to study dairy farms and plants in which these products are produced, processed, manufactured, stored, etc. Certain parts of the course are given by members of the Departments of Poultry Husbandry, Dairy and Food Science, and Animal Husbandry of the College of Agriculture, and the Department of Large Animal Medicine, Obstetrics and Surgery of the Veterinary College.

635. ANIMAL PARASITOLOGY

Second year, spring term. Credit two hours. Professor Whitlock. Prerequisites, zoology or biology. Lecture, Th 10:10. Laboratory, Th 2–4:25.

A systematic study of the helminth and arthropod parasites of domestic animals with particular emphasis on the identification and bionomics of the forms of veterinary importance.

636. CLINICAL PATHOLOGY

Second year, spring term. Credit two hours. Lecture, Th 12:20–1:10. Laboratory, Sec. I, W 2–4:25; Sec. II, W 10:10–12:35. Professors Bentinck-Smith and Tasker.

The application of the techniques of hematology, urinalysis, cytology, semen examinations and other laboratory procedures in diagnosis; the biochemical changes in the blood and other fluids in disease; the study of pathological alterations in clinical cases. Prerequisite, Courses 632 and 633, taken previously or concurrently. Students from other Colleges may be admitted by special permission without these prerequisites.

APPLIED PARASITOLOGY

731. Third year, fall term. Credit 3 hours. Lecture, M 10:10, T 1:10. Laboratory, Sec. A, T 10:10–12:35; Sec. B, T 2–4:25; Sec. C, Th 10:10–12:35. Associate Professor Georgi. Prerequisite, Course 635 or equivalent.

An organized study of the parasitic diseases of domestic animals with particular emphasis on the features of diagnostic importance. Special attention will be given to the laboratory and post-mortem techniques that are of value in applied parasitology.

930. PATHOLOGY SEMINAR

Fall and spring terms. No credit. Required of all graduate students in pathology. Undergraduate students are admitted.

931. PATHOLOGY OF NUTRITIONAL DISEASES

Spring term. Credit three hours. Lecture and laboratory. Hours to be arranged. Professor Krook. Designed primarily for graduate students of nutrition. Prerequisites, 630 and 631.

ADVANCED WORK IN ANIMAL PARASITOLOGY

932. Fall term. Credit one to three hours, by arrangement.

933. Spring term. Credit one to three hours, by arrangement. Professor Whitlock and Associate Professor Georgi. Prerequisite, Course 635. For advanced undergraduate and graduate students.

Special problems concerned with the parasites of domestic animals.

LABORATORY METHODS OF DIAGNOSIS

934. Fall term. Credit one to three hours, by appointment.

935. Spring term. Credit one to three hours, by appointment. Prerequisites, Courses 632 and 641 or 340. Graduate students.

Instructions and practice in the application of pathological methods for the diagnosis of disease.

ADVANCED WORK IN PATHOLOGY

936. Fall term. Credit one to three hours, by appointment.

937. Spring term. Credit one to three hours, by appointment.

Properly prepared students may undertake special problems or receive special assignments.

938. REPRODUCTIVE PATHOLOGY

Fall term. Credit two hours. Lecture and laboratory. Hours to be arranged. Professor McEntee. Prerequisites, Courses 630, 631, 632, and 633.

939. INTRODUCTION TO LABORATORY ANIMAL MEDICINE

Spring term. Credit two hours. Lecture and demonstration. M 1–4:25. Professor Boyer and staff. Prerequisite, permission of instructor.

An introduction to management and disease control in the laboratory animal species used in biological research, including mice, rats, guinea pigs, hamsters, rabbits, poultry, and non-human primates. Disease control in experimental colonies of dogs and cats is discussed. The course provides a survey of preventive medicine; the common diseases; and important aspects of comparative anatomy, ecology, behavior, and genetics.

Examining virus-infected monolayer cultures of living kidney tissue grown on glass (Tissue Culture Laboratory, Department of Microbiology).

MICROBIOLOGY

Professors D. W. Bruner, G. C. Poppensiek, J. A. Baker, J. H. Gillespie, B. E. Sheffy, A. J. Winter; Associate Professors L. E. Carmichael, K. M. Lee, N. L. Norcross; Assistant Professors M. J. Appel, S. G. Campbell, R. F. Kahrs, F. W. Scott; Senior Research Associate R. Takahashi; Research Associate C. G. Fabricant; Assistants C. K. Csiza, R. W. Dellers, J. M. Gaskin, D. F. Holmes. D. E. Kahn.

Courses 640, 641, 740, and 741 are required in the curriculum of the Veterinary College and are given particularly for veterinary students. Students of other colleges must have permission to register in any of these courses.

The other courses are not a part of the regular veterinary curriculum. They are available to graduate and to undergraduate students who have obtained the proper prerequisite training. Permission to register must be obtained, however.

340. PATHOGENIC BACTERIOLOGY

Spring term of odd years. Credit four hours. T Th 1:00–4:25. Professor Winter and Associate Professor Lee.

Includes microbiology, virology, and immunology.

640. BACTERIOLOGY AND IMMUNOLOGY

Second year, fall term. Credit four hours. M T W Th 1:10. Professors Bruner and Baker and Associate Professor Carmichael.

Includes general and pathological microbiology, virology, and immunology.

641. BACTERIOLOGY AND IMMUNOLOGY LABORATORY

Second year, fall term. Credit five hours. M T W Th F 2–4:25 Assistant Professor Campbell, Associate Professor Carmichael, and assistants. Open to students who have taken or are taking Course 640 or its equivalent.

740. EPIDEMIOLOGICAL METHODS

Third year, fall term. Credit two hours. W F 10:10. Assistant Professor Kahrs.

A lecture course dealing with health and disease from a herd, flock, community, or population standpoint and emphasizing the use of knowledge about etiology, transmission, and distribution of disease in the development of preventive measures and control programs.

741. INFECTIOUS DISEASES

Third year, spring term. Credit three hours. M W F 10:10. Professor Poppensiek and Assistant Professor Kahrs. Prerequisites, Courses 632 and 640.

941. SEROLOGY

Spring term of even years. Credit two hours. One hour, T 2–4:25, and one hour to be arranged. Professor Bruner and Assistant Professor Campbell. Limited to *eight* students, with preference given to graduate students. Permission to register must be obtained before the end of the preceding (fall) term. Prerequisites, Courses 340 or 640, and 641.

Includes complement fixation, conglutination complement absorption, hemagglutination inhibition, precipitation, fluorescent antibody techniques, neonatal isoerythrolysis, and the antigenic analysis of *Salmonella* cultures.

The Poultry Disease Diagnostic Laboratory in the Department of Avian Diseases, the largest of five such laboratories in New York.

ADVANCED WORK IN BACTERIOLOGY, VIROLOGY, OR IMMUNOLOGY

942. Fall term. Credit one to three hours, by arrangement.

943. Spring term. Credit one to three hours, by arrangement.
Properly prepared students may undertake special problems or receive special assignments.

944. IMMUNOCHEMISTRY

Spring term. Credit three hours. Lecture and laboratory. Hours to be arranged. Associate Professor Norcross. Registration by permission.

Lectures include quantitative aspects of the antibody-antigen reaction, physical and chemical properties of antibodies and antigens, the mechanisms of hypersensitivity, and tissue immunity. Laboratory experiments illustrate the phenomena covered in the lectures and familiarize the student with selected immunochemical technics.

945. ANIMAL VIROLOGY AND TISSUE CULTURE METHODS

Spring term of odd years. Credit one to four hours, by arrangement. Three credit hours for two lectures and one discussion section; one credit hour for one laboratory period. M W 1:10–4:25. Associate Professors Lee and Carmichael. Courses 340 or 630 and 640 are considered prerequisites, except under special circumstances. Permission to register required.

Lectures will include the biology of animal viruses with emphasis on topics of general significance. Laboratory exercises emphasize methods of tissue culture preservation of cell lines, and the application of tissue culture methods to virology.

946. MICROBIOLOGY SEMINAR

Fall and spring terms. No credit. W 11:15–12:05. Professor Winter. Required of all graduate students. Undergraduate students are admitted.

LABORATORY METHODS OF DIAGNOSIS

947. Fall term. Credit one to three hours, by arrangement.

948. Spring term. Credit one to three hours, by arrangement.
Prerequisites, Course 340 or 633 and 641.

Instructions and practice in the application of bacteriological, and serological methods for the diagnosis of disease.

AVIAN DISEASES

Professors S. B. Hitchner, P. P. Levine, J. Fabricant, M. C. Peckham, B. W. Calnek; Assistants S. Miller, Dov Karpas.

The department maintains a poultry disease diagnostic clinic at the college and four regional diagnostic laboratories in different parts of the state. These laboratories supply fresh material for teaching and research purposes. Adequate facilities existing at the college and at the poultry disease research laboratory on Snyder Hill provide opportunities for advanced study for properly qualified students. A respiratory disease-free breeding flock and a poultry disease isolation building are available for studies on most infectious and other diseases of poultry.

Courses in surgery are given to third- and fourth-year students after two years of basic sciences (Small Animal Surgery).

750. DISEASES OF POULTRY

Third year, spring term. Credit three hours. T Th 10:10, F 2–4:25. Professor Levine. Required of veterinary students.

Diseases of domestic poultry and other birds are studied with special emphasis on differential diagnosis and control. Fresh and preserved specimens from the Poultry Diagnostic Clinic are presented during the laboratory period.

450. POULTRY HYGIENE AND DISEASE

Fall term, alternate years. Not offered in fall of 1968. Credit two hours. Lecture and laboratory. Th 2–4:25. Prerequisites, Biol. Sci. 290 or 290A, and permission of the instructor.

The nature of the infectious and parasitic diseases of poultry, and the principles of hygiene applicable to poultry farming for the prevention and control of diseases.

SMALL ANIMAL MEDICINE AND SURGERY

Professors E. P. Leonard, R. W. Kirk; Associate Professor G. E. Ross, Jr., Resident T. M. Neal; Internes M. H. Mehling, R. F. Soirez, W. P. Swann.

The instruction consists of lectures, recitations, and laboratory work. The Small Animal Clinic furnishes abundant material for instruction in applied therapeutics of these animals, including the surgical as well as the medical. The clinic is run like any small animal practice. The students are assigned to the cases, assist in any operations, and under close supervision have charge of the patients.

SMALL ANIMAL MEDICINE

760. Fall term, third year. Credit three hours. M W 11:15, Th 9:05.

761. Spring term, third year. Credit three hours. T W 11:15, F 9:05. Professor Kirk. Prerequisite, Special Pathology and Pharmacology.

762. SMALL ANIMAL SURGERY

Third year, spring term. Credit four hours. M W Th F 8, Associate Professor Ross. Prerequisite, Special Pathology.

763. SURGICAL EXERCISES

Third year, spring term. Credit one hour. M T W or Th 2–4:25. Professor Leonard, Associate Professor Ross.

ADVANCED WORK

960. Fall term.

961. Spring term.

Five or more hours a week throughout the term. Research in medicine and surgery of small animals. Professors Leonard, Kirk, and Associate Professor Ross.

LARGE ANIMAL MEDICINE, OBSTETRICS, AND SURGERY

Professors K. McEntee, S. J. Roberts, F. H. Fox, A. G. Danks (on leave until December 31, 1968), D. D. Delahanty, A. J. Winter; Associate Professors N. L. Norcross, R. M. Kenney, J. C. Geary, H. F. Schryver, N. B. Haynes; Assistant Professors R. B. Hillman (on leave until August 31, 1969), J. E. Lowe, R. F. Kahrs, R. K. Braun, H. F. Hintz; Senior Research Associates H. O. Dunn, D. H. Lein; Research Associate K. Burda; Supervising Veterinarian R. S. Guthrie; Field Veterinarians S. D. Johnson, L. E. Field; Medical Internes J. Mehling, J. M. Leahy, P. M. Nolan; Surgical Internes R. Higginbotham, E. R. Conner, K. L. Twisselmann; Radiology Intern J. A. LaCroix; Farrier H. G. Mowers; X-Ray Technicians G. D. Ryan and P. J. Caleb.

The prerequisite requirement for admission to undergraduate courses in this Department, except Course 470, is the successful completion of the basic science subjects presented in the first two years of the veterinary curriculum.

Classroom Work in Large Animal Medicine

The course in veterinary large animal medicine, principles and practice, extends over the last two years of undergraduate study, the subjects of the second year being distinct from, and complementary to, those of the first. It includes the constitutional, dietetic, and toxic affections and the noninfectious maladies of the different systems of organs—digestive, respiratory, circulatory, urinary, cutaneous, reproductive, and visual—of the various genera of domestic animals. It also includes a study of the clinical phases of infectious and parasitic diseases, the disturbances of metabolism, and therapeutics of large animals.

Our proximity to a large agricultural college and to a well-stocked farming community tends to offer a greater variety of patients than can be had in a large city remote from country flocks and herds. Students take charge of a few unusual cases in the hospital and many routine cases in the ambulatory clinic. Complete daily records are prepared by the students on all of the most instructive cases. The course also includes instruction in diagnosis. Through the medium of laboratory work students are expected to acquire a methodical system of examination by repeated systematic observations on both normal and diseased animals. The work involves the use of various special diagnostic methods taught in our own and other laboratories of the College, such as examination of the blood, milk, urine, and feces, the application of sero-diagnostic methods, etc.

Ambulatory Clinic

An ambulatory or out-clinic is conducted for the purpose of giving instruction to students under conditions identical with those encountered in private practice. Proper conveyances and equipment are provided, and an opportunity is afforded for observing such diseased farm and dairy animals as cannot be entered in the clinics of the College. The

The skin test for tuberculosis (Ambulatory Clinic, Department of Large Animal Medicine, Obstetrics and Surgery).

student thereby not only has an opportunity to see cases not readily brought to the College clinic but also assists in handling cases in the same manner and under the same environment as are required of the country practitioner. As the vicinity of Ithaca is largely devoted to dairying, valuable clinical material relating to obstetrics and the diseases of dairy cows is available and is extensively used. In addition, the supervising veterinarian and two field veterinarians associated with the New York State Mastitis Program are resident in Ithaca, and senior students are required to accompany and assist them on many field trips dealing with all phases of bovine mastitis, including a study of various methods of milking and housing dairy cattle. In the senior year, field trips are made to study and observe management practices on large horse breeding, sheep, and swine farms, and these are a required part of Courses 671, 770, 771, 772, 870, and 871.

Classroom Work in Large Animal Surgery

Course 773 (General Surgery), Course 630 (General Pathology), and Course 774 (Large Animal Surgical Exercises) together constitute a group designed to impart a general knowledge of the principles of surgery, surgical pathology, therapeutics, and operative technique.

Course 775, a total of seventy-five lectures and recitations, is devoted to the surgery of the various regions of the body and includes horseshoeing.

Laboratory Work in Surgery

The laboratory work includes surgical exercises and general surgery. In the course in large animal surgical exercises, the student is required to perform most of the important operations on horses, cattle, and sheep. The animal is placed under general anesthesia, which is maintained until the close of the period, when the subject is destroyed. Emphasis is placed on asepsis and antisepsis, arrest of hemorrhage, suturing, and dressing, so that while acquiring skill and knowledge of the appearance, resistance, and general character of living tissue, the student also forms proper habits in surgical procedure.

In general surgery laboratory, most emphasis is placed upon the farm animals, but many basic principles may be adapted to all classes of animals. Subjects taught include restraint, various methods of administering medicines, suturing, bandaging, examination of teeth, examination of the feet, and complete examination for soundness.

Clinical Surgery of the Farm Animal

A hospital is maintained with facilities for the hospitalization of approximately sixty-seven patients. There are two operating rooms equipped with operating tables, stocks, diagnostic and therapeutic x-ray equipment, and other conveniences. There is also a farriery with a farrier in attendance. Fourth-year students are in the clinics for the entire day, Monday through Friday, also on Saturday and Sunday morning. Two classes of patients are admitted: special patients and clinic patients. Special patients are examined, diagnosed, and treated by the senior staff members. The students assist and observe. Clinic patients are examined, diagnosed, and treated by the residents and students. In the hospital, the student has an opportunity to see, examine, and treat many unusual cases that are referred to the College by practitioners. Furthermore, the student has an opportunity to study the progress of cases, which is often impossible when treating patients on the farm. The cooperation between the clinical staff and the laboratories provides the student an opportunity to study the patient critically and to correlate clinical with both physiological and pathological findings. Every possible opportunity is given to the student to participate in the examination and treatment of patients because the student will learn more from doing than from observing.

470. HEALTH AND DISEASES OF ANIMALS

Spring term. Credit three hours. Lectures, M W F 11:15. Not open to first-year students or to those who have had no course in animal husbandry.

The causes and the nature of the common diseases of livestock are discussed. Emphasis is placed on the prevention and control of animal diseases.

670. FUNDAMENTALS OF ROENTGENOLOGY

Spring term, second year. Credit one hour. Th 11:15. Associate Professor Geary and staff.

Technique of operation of modern equipment, x-ray protection, darkroom procedure, and fundamentals of diagnosis.

OBSTETRICS AND GENITAL DISEASES

671. Spring term, second year. Credit three hours. Lectures W F 8. Laboratory F 2–4:25 or S 9:05–11:30. Professor Roberts.

Pregnancy diagnosis, diseases of the gestation period including teratology and abortion, parturition, dystocia, obstetrical operations, and postpartum diseases are presented.

770. Fall term, third year. Credit three hours. Lectures T 9:05, S 8. Laboratory M or Th 2–4:25. Professor Roberts.

Applied physiology and endocrinology of the male and female reproductive tract; congenital, infectious, endocrine and miscellaneous diseases of the genital organs causing infertility and sterility; and artificial insemination are presented. Further clinical instruction in obstetrics and infertility is given in the ambulatory clinic, in the College dairy barn, and at a nearby abattoir in the third and fourth years.

DISEASES OF LARGE ANIMALS

771. Fall term, third year. Credit five hours. M W F Th F 8. Professor Fox.

772. Spring term, third year. Credit two hours. T S 8. Professor Fox.

Lectures or recitations covering physical diagnosis, ophthalmology, therapeutics and some diseases of large animals.

773. GENERAL SURGERY

Third year, fall term. Credit four hours. Lecture, M W F 9:05. Laboratory, T Th or S 10:10–12:35. Professor Delahanty and assistants. Prerequisite, third-year standing in the veterinary curriculum.

774. LARGE ANIMAL SURGICAL EXERCISES

Third year, fall term. Credit one hour. M T W Th 2–4:25.

Three hours a week of laboratory work in surgical operations upon anesthesized large animals.

775. SPECIAL SURGERY OF LARGE ANIMALS

Third year, spring term. Credit five hours. M T W Th 9:05, F 11:15. Professor Delahanty.

DISEASES OF LARGE ANIMALS

870. Fall term, fourth year. Credit five hours. M T W Th F 8. Assistant Professor Braun.

871. Spring term, fourth year. Credit four hours. M T W Th 8. Assistant Professor Braun.

Lectures and field trips concerning poisonous plants are given by Associate Professor Kingsbury of the Department of Botany.

872. JURISPRUDENCE, ETHICS, AND BUSINESS METHODS

Fourth year, spring term. Credit one hour. F 8. Professor Danks and associates.

Lectures by a lawyer on the subjects of the expert witness, jurisprudence, and civil law; lectures by one trained in business administration on the subjects of accounting, business methods, etc.; and lectures on various practical subjects such as registration, selecting a place to practice, advertising, ethics, etc.

ADVANCED WORK IN REPRODUCTIVE PATHOLOGY AND BACTERIOLOGY, MEDICINE, OBSTETRICS, AND SURGERY

970. Fall term, graduate students. Hours and credit to be arranged.

971. Spring term, graduate students. Hours and credit to be arranged.

Professors McEntee, Roberts, Fox, Delahanty, Winter; Associate Professor Kenney.

Properly prepared students may undertake special problems or receive special assignments.

IMMUNOCHEMISTRY

Associate Professor Norcross.

See Department of Microbiology, Course 944.

REPRODUCTIVE PATHOLOGY

Professor McEntee.

See Department of Pathology, Course 938.

EPIDEMIOLOGICAL METHODS

Assistant Professor Kahrs.

See Department of Microbiology, Course 740.

Special Lectures

During the year, lectures on special topics in medicine will be given by eminent practitioners and teachers of veterinary medicine. They will form a part of the instruction in this Department.

Opportunities for Research

The activities of the Department, aside from the instruction, are devoted to research in connection with diseases of cattle, including mastitis, the phenomena of sterility and abortion in animals of breeding age, and diseases of newborn calves. Opportunity is afforded for participation in the investigations by graduate students having acceptable preparation.

THE CLINICAL COURSES

Professors Leonard, McEntee, Delahanty, Roberts, Kirk, Rickard, Fox, Bentinck-Smith, Fabricant, Peckham, Hitchner; Associate Professors Ross, Geary; Assistant Professors Hillman, Lowe, Braun; Resident Neal; Medical Internes Bliss, J. Mehling, M. Mehling, Soirez, Swann; Surgical Internes Connor, Higgenbotham; Research Associate Holzinger; Assistant Percy; Supervising Veterinarian Guthrie; Field Veterinarian Field, Johnson.

The practical application of the student's basic knowledge of veterinary medicine to the clinical diagnosis and therapy of disease begins in the third year of his course. During that year he is required to take Clinical Orientation, which introduces him to clinical work largely as an observer. His intensive training in clinical medicine and surgery begins in his fourth year, the greater part of which is devoted to actual handling of patients under close supervision of members of the clinical staff. The technical instruction is divided among four departments as follows.

The Ambulatory and Consulting Clinics are operated by the Department of Large Animal Medicine, Obstetrics and Surgery.

A student examines a cow for mastitis.

The Small Animal Clinic is operated by the Department of Small Animal Medicine and Surgery.

The Poultry Clinic is conducted by the Department of Avian Diseases.

The work in autopsies and clinical pathology is conducted by the Department of Pathology.

Information about the respective clinical divisions will be found under the course announcements of the departments concerned. Only students who have completed the first two years of the veterinary curriculum will be admitted to any one of the clinical courses.

Students must complete all prescribed clinical courses satisfactorily to be eligible for graduation.

CLINICAL ORIENTATION

790. Fall term, third year. W 12:20.
Professor Leonard in charge.

791. Spring term, third year. M 11:15 and M T W or Th 2–4:25. Professor Leonard in charge.

Methods of clinical examination will be demonstrated, and selected cases from all the clinics will be presented and discussed.

SENIOR SEMINAR

898. Fall term, fourth year. F 12:20–1:10.
Assistant Professor Lowe in charge.

899. Spring term, fourth year. F 12:20–1:10.

Assistant Professor Lowe in charge.

These conferences will be attended by all members of the fourth-year class and by staff members representing not only the clinical but the preclinical or basic sciences as well. Students will be required to present reports on their studies of selected cases from the clinics, and these will be criticized and discussed by the students and faculty members. In this way special knowledge and viewpoints of the anatomist, biochemist, physiologist, pathologist, bacteriologist, and parasitologist, as well as those of the clinicians, will be brought to bear on problems of diagnosis and therapy.

SMALL ANIMAL CLINIC

890. Fall term, fourth year. Credit four hours.

891. Spring term, fourth year. Credit four hours.

LARGE ANIMAL CLINIC

892. Fall term, fourth year. Credit four hours.

893. Spring term, fourth year. Credit four hours.

AMBULATORY CLINIC

894. Fall term, fourth year. Credit four hours.

895. Spring term, fourth year. Credit four hours.

CLINICS ANCILLARY

896. Fall term, fourth year. Credit four hours.

897. Spring term, fourth year. Credit four hours.

These clinics operate daily by assignment, including nights and Sundays when necessary. Professors Leonard, Delahanty, Fox, Bentinck-Smith, respectively.

During his fourth and final year the veterinary student is required to spend his time, after 9 A.M. daily, studying and ministering to the ailments of patients. He is on call, night and day, during the entire year. For this reason he is not permitted to carry extra academic courses, and outside part-time employment is not accepted as a valid excuse for failure to meet his full responsibilities in these courses.

Under a plan of rotation, students are required to work in groups in the four clinics so that they may acquire a varied experience. Work in one of the clinics may not be substituted for that in any of the others.

Work in clinical pathology and autopsies will be supervised by the Department of Pathology. As a part of their ancillary clinical duties, students will be required to carry out, under the supervision of the clinical pathologist, such laboratory procedures as are indicated. Students in ancillary clinic are assigned to autopsy duty under the supervision of a pathologist, and the results of each necropsy are reported to the clinic group responsible for the case.

COURSES IN THE VETERINARY CURRICULUM GIVEN BY OTHER DIVISIONS

College of Agriculture

100. ANIMAL SCIENCE

(Introductory Animal Science.) First year, fall term. Credit three hours. Lectures, W F 10:10. Morrison 146. Laboratory, W 11:15–1:10. Livestock Pavilion. Associate Professor Elliot and assistants.

Designed to acquaint the beginning student with the development, scope, economic importance, problems, and language of the livestock industry. All commercially important classes of farm animals are considered, with emphasis on dairy cattle, beef cattle, sheep, and swine. The place of the biological sciences in a rapidly changing animal agriculture is stressed. The intent is to give insight into opportunities in the field, and to serve as an introduction to subsequent specialized courses.

311. ANIMAL SCIENCE

(The Principles and Practice of Animal Feeding.) First year, spring term. Credit three hours. Lectures, M W 8. Morrison 163. Laboratory T 10:10–12:35. Morrison 164. Associate Professor Hogue.

Consideration is given to the basic principles of animal nutrition, nutritive requirements for various body functions; the identification, composition, and nutritive value of feeds, and the formulation of animal rations. The species covered include dairy cattle, beef cattle, sheep, swine, and horses; and there is some consideration of dogs, cats, and other small animals. Special emphasis is given to nutritional problems relating to animal health.

424. ANIMAL GENETICS

Second year, fall term. Credit two hours. For veterinary students only. Lecture M 8, Morrison 163. Laboratory, W 10:10–12:35, Morrison 164 and 174. Associate Professor Van Vleck.

Principles of genetics; sex determination and sex linkage; inheritance of characteristics in domestic animals with special reference to lethal genes, genetic resistance to disease and quantitative characters; progeny testing, genetic relationships and inbreeding.

CAREERS FOR VETERINARIANS

The function of the Veterinary College is to educate young men and women to become practitioners, teachers, and research workers in the science and art of veterinary medicine. The College thus serves to protect the health of livestock, poultry, and companion animals, and to support public health programs.

The veterinary medical profession offers excellent opportunities for those who have an abiding interest in the diagnosis, treatment, and prevention of diseases of animals. Like most medical careers, it is a way of life requiring strong vocational motivation and dedication. It is a demanding career. The work often is rigorous. The compensation varies greatly, but intelligent and conscientious service usually is rewarded by an adequate income. Those who are genuinely interested in the work have the satisfaction of serving a useful purpose. Some of the opportunities for veterinary graduates in the United States are described below.

An examination for thyroid function with radioactive iodine.

PRIVATE PRACTICE

Veterinary practice is a wide field with excellent opportunities for well-qualified persons. Practice may be (a) general, in which the individual offers his services in dealing with all species of animals; (b) restricted to small animals, in which only pets are treated; or (c) specialized, in which practice is limited, for example, to diseases of poultry, diseases of horses, diseases of cattle. About two-thirds of the graduates of veterinary colleges become private practitioners.

SALARIED POSITIONS

About one-third of veterinary college graduates obtain salaried positions. The majority of these are with the federal, state, county, and municipal governments; the remainder are with private corporations or academic institutions.

Private Corporations

Many veterinarians are employed by the large milk companies, by large stock and poultry farms, and by industrial laboratories that produce biologicals and pharmaceuticals for the prevention and treatment of diseases.

Governmental Agencies

THE AGRICULTURAL RESEARCH SERVICE OF THE UNITED STATES DEPARTMENT OF AGRICULTURE employs more veterinarians than any other single agency. The work is concerned for the most part with the prevention, control, and eradication of domestic and foreign infectious and parasitic diseases of milk- and meat-producing animals.

This Service also is responsible for assurance of safe, wholesome, and accurately labeled food products of animal origin. Regulatory veterinary medicine, based upon sound veterinary medical knowledge, supported by effective legislation, is planned and carried out in ways that will achieve the desired results while interfering least with the economic life of the community and nation.

Many veterinarians in this Service are engaged in full-time research programs on diseases of animals of economic importance in well-equipped laboratories under the direction of the Animal Disease and Parasite Research Division.

VETERINARY CORPS, U. S. ARMY AND AIR FORCE. Veterinarians who are physically qualified men and graduates of veterinary colleges acceptable to the Surgeon General of the U.S. Army and U.S. Air Force

and who elect to go on active duty are eligible to make application for appointment. Qualified candidates are appointed in the grades of first lieutenant to colonel inclusive, the grade being determined by the age, professional experience, and professional qualifications of the applicant.

THE U.S. PUBLIC HEALTH SERVICE employs veterinarians in the development and administration of programs concerned largely with the control of domestic and foreign diseases of animals transmissible to man. The Service cooperates extensively with international disease control agencies as well as with our state governments. In addition, to maintaining active programs in research laboratories of its own, the Service engages in diversified contractural research programs with numerous academic institutions.

STATE GOVERNMENTS. Every state has a state veterinarian or similar officer, usually in the Department of Agriculture, whose duties are to look after the health of animals by enforcing laws and regulations drawn for this purpose. In many states the state veterinarian has a corps of assistant veterinarians.

Many state health departments have one or more veterinarians on their staffs to advise on animal diseases that have significance in human health and to investigate outbreaks of such diseases.

Almost every agricultural college has a veterinary department. Some of these employ five or six veterinarians as research workers and teachers. The veterinary colleges of the country have staffs of veterinarians working in a number of specialized disciplines. Teaching opportunities are numerous in every field of veterinary education.

MUNICIPAL GOVERNMENTS. Most cities employ graduate veterinarians on a full-time basis, and many towns and villages on a part-time basis, as members of their health departments. The duties of these men usually are connected with the sanitary control of meat and milk.

LEGAL REQUIREMENTS FOR PRACTICE

Before one can practice veterinary medicine in the United States he must obtain a license from the state or states in which he locates his practice. This license generally is issued by the Department of Education or the Department of Agriculture on the basis of an examination set by a veterinary licensing board. Some states issue licenses without examination, by reciprocity when the applicant has been licensed in other states.

In New York the licensing agency is the State Education Department, Albany, N.Y. 12224. Examinations are given twice a year. Applicants are required to furnish evidence of adequate preprofessional as well as professional education, of good moral character, and of being at least twenty one years of age. Application for the examination must be filed at least thirty days before the scheduled date and must be accompanied by a fee of $40.00.

STUDENTS, VETERINARY COLLEGE

GRADUATE STUDENTS, 1967–68

Ahrens, Franklin A., B.S., D.V.M., M.S., Clarkson, Neb.
Al-Aubaidi, Jawad M., B.V.M.S., M.S. Baghdad, Iraq
Al-Khayyat, Ali Aziz, B.V.Sc., Baghdad, Iraq
Barber, Thomas L., D.V.M., M.S., Southold, N.Y.
Bartholomew, Richard C., D.V.M., Ithaca
Benjamin, Stephen A., B.A., D.V.M., Ithaca
Bredderman, Paul, B.S., M.S., Ithaca
Bryden, Michael, B.V.Sc., Sydney, Australia
Bubar, Richard H., A.B., D.V.M., Urbana, Ill.
Coomes, Roger, M.S., Weedsport
Csiza, Charles K., D.V.M., Quebec, Canada
Davis, Thomas E., D.V.M., Edgewood, Md.
Dellers, Robert W., D.V.M., Ithaca
Dodd, Kevin, M.V.B., Dublin, Ireland
Dougherty, Ellsworth III, B.S., V.M.D., M.S., Ithaca
Estes, Paul C., B.A., D.V.M., M.S., Ky.
Fung, Joseph Ping H., B.Sc., M.S., Hong Kong, China
Gray, Bruce W., D.V.M., Ithaca
Hirabayashi, Doris L., B.S., M.S., Youngstown, Ohio
Holmes, Dorothy F., D.V.M., Groton
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House, James A., B.S., D.V.M., Newfield
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Jones, William O., B.S., D.V.M., Tuskegee, Alabama
Kahn, Donald E., D.V.M., Flushing, L.I.
Karpas, Dov, D.V.M., Ithaca
Kasprzak, Hedwig (Mrs.), B.A., M.A., Ithaca
Katz, Michael L., B.S., D.V.M., M.S., Ithaca
Kemen, Mathias J., Jr., D.V.M., Ithaca
LeJambre, Leo F., A.S., B.S., M.S.
Lucio, Benjamin, D.V.M., Mexico
Lucio, Eglantina Z., D.V.M., Mexico
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Menegus, Marylin A., B.S., Clifton, N.J.
McKenzie, Basil E., D.V.M., Green Island, Jamaica
Molony, Vincent, M.R.C.V.S., B.V.Sc., England
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Norrdin, Robert W., B.S., D.V.M., New York City
Ovejero, Juan, D.V.M., Madrid, Spain
Parsonson, Ian, M., B.V.Sc., Victoria, Australia
Percy, Dean H., D.V.M., M.Sc., Ontario, Canada
Pickerill, Phillip A., D.V.M., Lake City, Iowa
Post, John E., B.S., D.V.M., Fort Collins, Colorado
Rich, Lonnie J., B.S., D.V.M., N. Sacramento, California
Rothmeier, Jeffrey J., B.E.E., M.S., Ithaca
Russell, Harold, B.S., Atlanta, Ga.
Sack, Ann B., B.S., Ithaca
Sansi, Kamoru A., B.V.M.S., Nigeria
Saona, Luis B., Vet. Dr., Lima, Peru
Scott, Fredric W., D.V.M., Ashfield, Mass.
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Slocombe, J. Owen D., B.S., D.V.M., Tobago, B.W.I.
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Spencer, J. Lloyd, B.S., D.V.M., M.S., Magrath, Alberta, Canada
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Stark, Dennis M., D.V.M., Whitehall, Maryland
Strandberg, John D., B.A., D.V.M., Ithaca
Svendsen, Per E., Vet Surgery, Denmark
Talisayon, S.D., B.S., M.S., Philippines
Taylor, Alan N., B.S., M.S., Ithaca
Trenholm, H. Locksley, B.S., M.S., Amherst, Nova Scotia
Thorlacius, Sigurberg, B.Sc., Winnipeg, Canada
Turnquest, Robert U., A.B., D.V.M., New York City
Vallenas, Augusto, D.V.M., M.Sc., Lima, Peru
Volenec, F. Jerry, B.S., Omaha, Neb.
Walton, Thomas E., D.V.M., Ithaca
Ward, Gerald M., D.V.M., Olean
Whitlock, Robert H., D.V.M., Ithaca
Wilkie, Bruce N., B.S.A., D.V.M., British Columbia, Canada
Wolff, J. E., B.S., M.S., Ithaca
Young, W., D.V.M., Taipei, Taiwan
Zecha, Bernard, B.S., D.V.M., Ithaca

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Miller, Alexander Jon, Flushing
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Tulman, Michael Jonas, Hartford, Conn.
Washington, Lawrence Dowdell, Stamford, Conn.
West, Roger Louis, Hadley, Mass.
Wilson, John Anthony, Elmhurst
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Wright, James Michael, Dobbs Ferry

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